1

2

3

4

5

6

7

8

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON

9

10

11

12

13

14

15

FEDERAL TRADE COMMISSION,

     Plaintiff,

   v.

AMAZON.COM, INC.,

     Defendant.

Case No. 2:14-cv-01038-JCC

**DECLARATION OF
JENNIFER KING**

16

17   I, Jennifer King, declare as follows:

18   1.   I am a United States citizen over 18 years of age.

19   2.   I am a Ph.D. candidate at the School of Information, University of California,

20   Berkeley. I have been retained by the Federal Trade Commission as an expert in the above-

21   captioned case.

22   3.   Exhibit A to this declaration is a true and correct copy of my October 16, 2015 expert

23   report in the above-captioned case. I hereby incorporate by reference the contents of my expert

24   report and all accompanying appendices thereto as my sworn testimony as if fully set forth

25   herein.

26

DECLARATION OF JENNIFER KING
Case No. 2:14-cv-01038-JCC

Federal Trade Commission
600 Pennsylvania Avenue N.W.
Washington, DC 20580
(202) 326-3231

1   4.   Exhibit B to this declaration is a true and correct copy of my December 7, 2015 rebuttal

2   expert report in the above-captioned case. I hereby incorporate by reference the contents of my

3   rebuttal expert report as my sworn testimony as if fully set forth herein.

4

5

6   Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United

7   States of America, that the foregoing is true and correct.

8

9   Executed on January 25, 2016

10   Jennifer King

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

DECLARATION OF JENNIFER KING   Federal Trade Commission
Case No. 2:14-cv-01038-JCC   600 Pennsylvania Avenue N.W.
                                                     Washington, DC 20580
                        2   (202) 326-3231

EXHIBIT A

EXPERT REPORT OF JENNIFER KING
Federal Trade Commission v. Amazon.com, Inc.
Case No. 2:14-cv-01038-JCC (W.D. Wash.)
October 16, 2015

Table of Contents

I.   Qualification Statement

I am currently a Ph.D. candidate at the School of Information, University of California, Berkeley. I obtained my masters degree in 2006, also from the School of Information (Masters of Information Management and Systems), with emphases in internet law and policy, social aspects of computing, and human-computer interaction ("HCI"). My research and publications draw on my training in HCI qualitative and quantitative research methods and socio-technical aspects of information systems to focus on information privacy issues in technological systems, including consumer privacy expectations and preferences on social networking sites, on smartphones and other mobile and application driven platforms. As part of this work, I often explore end-user comprehension of privacy policies and disclosures both online and on mobile devices, and related issues around the framing, placement, and content of disclosures. On the basis of this work, I am often a speaker and panelist at academic, industry, and policy focused conferences. My research has been funded by grants by the National Science Foundation (NSF) through the Team for Research in Ubiquitous Secure Technology (TRUST) as well as the Institute for Infrastructure Protection (I3P).

My academic training in human-computer interaction research and analysis builds upon an eight-year professional career in internet product management and online content production. My professional experience that most directly informs my analysis as an expert witness consists of the following: as a product manager at Yahoo! for nearly three years, I worked for both Yahoo! Personals (Yahoo's former online dating service) and the Communities (Yahoo! Groups, Message Boards, Avatars, etc.) business units. My experience at the company included gathering business requirements for internal software projects, project management (working directly with engineering teams to execute and manage project specifications), consumer product feature

development and marketing (including working with internal marketing teams and outside vendors to plan and manage email marketing campaigns), and both strategic and tactical analysis and plans for fighting fraud and abuse. In these roles, I worked closely with teams across the company, including Legal, Customer Service, Engineering, Marketing, Security, Design, and Research Analytics. Prior to Yahoo!, I worked for two years with the internet software development arm of the testing and education company Kaplan Inc. (part of the Washington Post Company), where my experience also included usability testing, application information design, developing software testing plans, conducting end-user training, and writing documentation. As an online producer for Productopia.com, a now defunct consumer product review site, I managed the design and execution of the website's online commerce feature for a year, including working with sales teams to manage merchant relationships, and day-to-day oversight of the production team. In summary, I have a unique combination of professional experience and academic-based research expertise in user experience research and human-computer interaction.

Attached to this report as Appendix 1 is my current Curriculum Vitae with a list of all of my publications authored within the past ten years, and a list of all cases in which I have testified as an expert at trial or by deposition in the past four years indicated under "Professional and Research Experience."

II.   Scope of Work and Summary of Conclusions

The FTC presented me with seven questions to investigate in this matter, relating to purchases available within applications ("in-app charges" or "in-app purchases") downloaded from the Amazon Appstore on Amazon's Kindle Fire tablet computer and other third-party devices.

1. Did Amazon effectively convey to consumers downloading an in-app charge app (an app containing in-app charges) from the Amazon Appstore that children could incur in-app charges?

2. Did Amazon effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that children could incur in-app charges without parental involvement?

3. Similarly, did Amazon effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that they would have to change their device settings to prevent children from incurring in-app charges without parental involvement?

4. Did Amazon effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain additional in-app charges without password reentry?

5. Similarly, did Amazon effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring additional in-app charges without password reentry?

6. Did Amazon effectively convey to consumers who incurred unauthorized in-app charges that refunds were available for those charges from Amazon?

7. Did Amazon effectively convey to consumers who incurred unauthorized in-app charges how to request a refund for those charges from Amazon?

The conclusions I draw in this report are based upon the materials I have reviewed to date, and my experience as a practitioner in the user experience/usability field, as well as my knowledge of the relevant academic research and my own research in this area. I am continuing my research in this matter, and my ongoing research may lead to additional insights. I may testify as an expert about additional matters, including (i) positions that Amazon takes, including opinions of its experts and materials they discuss or rely upon; (ii) issues that arise from any forthcoming orders in this case; (iii) issues that arise from documents or other discovery that Amazon has not yet produced or produced too late to be considered fully before my report was due; and (iv) witness testimony that has not yet been given.

   Based on my research to date, I have formed the following opinions, which I will discuss in detail in the remainder of this report:

1. With regards to Question One, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers downloading an in-app charge app (an app containing in-app charges) from the Amazon Appstore that children could incur in-app charges.

2. With regards to Question Two, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that children could incur in-app charges without parental involvement.

3. With regards to Question Three, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that they would have to change their device settings to prevent children from incurring in-app charges without parental involvement.

4. With regards to Question Four, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain additional in-app charges without password reentry.

5. With regards to Question Five, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring additional in-app charges without password reentry.

6. With regards to Question Six, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges that refunds were available for those charges from Amazon.

7. With regards to Question Seven, it is my conclusion that Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges how to request a refund for those charges from Amazon.

I am being compensated for my work in this matter at the rate of $140 per hour.

III. Materials Reviewed and Considered

In order to make my determinations I reviewed and considered the following materials:

- Case filings, case materials, and documents produced by Amazon available as of October 16, 2015, including, but not limited to:
  - Complaint for Permanent Injunction and Other Equitable Relief, filed 7/10/14;
  - Plaintiff's First Set of Interrogatories and Amazon.com, Inc.'s Supplemental and Second Supplemental Response to Plaintiff's First Set of Interrogatories, and excerpts from the following documents as indicated in the Responses:
    - October 8, 2012 Letter from Amazon to Duane Pozza
    - October 10, 2012 Slideshow and Presentation to the FTC
    - November 16, 2012 Letter from Amazon to Duane Pozza
    - August 14, 2013 Letter from Amazon to Duane Pozza and Jason Adler
    - March 28, 2014 Memorandum from Amazon to Bureau of Consumer Protection
    - April 22, 2014 Letter from Amazon to Jessica Rich, Director, Bureau of Consumer Protection, FTC
    - May 30, 2014 Memorandum from Amazon to FTC, Appendix
    - June 20, 2014 Letter from Amazon to Chairwoman Edith Ramirez, FTC
    - June 24, 2014 Letters from Amazon to FTC Commissioners Brill, Ohlhausen, Wright, and McSweeny
  - Amazon.com, Inc.'s Responses and Objections and Supplemental Responses and Objections to Plaintiff's Third Set of Interrogatories
  - Amazon.com, Inc.'s Second Supplemental Responses and Objections to Plaintiff's Fourth Set of Interrogatories
  - Additional documents produced by Amazon (including screenshots), including: AMZN000418, AMZN000392, Amz_FTC_0084992, AMZN000397, AMZN000403, AMZN000161, AMZN000471, AMZN000599 – 638, AMZN000709, Amazon_00008749 – Amazon_00008892, Amazon_00385350 - Amazon_00385372, Amazon_00379861 – Amazon_00379863; Amazon_00008697 – Amazon_00008892, Amazon_00013250;

Amazon_00245048,   Amazon_00014914,   Amazon_00016240-41,
Amazon__00278835-37,   Amazon_00306467,   Amazon_00361904-362121,
Amazon_00365512,   Amazon_00366818-30,   Amazon_00369944,
Amazon_00376368,   AMZN000017,   AMZN000223,   Amz_FTC_0009532,
Amz_FTC_0017487,   Amz_FTC_0017488,   Amz_FTC_0028446,
Amz_FTC_0056674,   Amz_FTC_0056676,   Amz_FTC_0057486,
Amz_FTC_0059202,   Amz_FTC_0091603,   Amz_FTC_0091604,
Amz_FTC_0091614.

- o Customer Service Contact Codes provided by Amazon, Amazon_00006476 – Amazon_00006519;

- o Amazon Appstore Terms of Use documentation provided by Amazon, Amazon_00000241-00000247,   Amazon_00000306-00000327, Amazon_00000348-00000361;

- o Exhibit 189 to the Deposition of Michael Harbut and excerpted portions of his testimony (pp. 157-178);

- o 152,484 customer complaints provided by Amazon in the form of text files dated 11.22.11 through 7.2.14, bates labeled Amazon_00023557 – Amazon_209634;

- o An Excel spreadsheet entitled AMZ_Csc_0000001.xlsx containing customer complaint details accompanied by complaint pdf files, corresponding to hyperlinks in the spreadsheet, dated February 25, 2013. I understand that this information was produced by Amazon to the FTC on or about February 25, 2013.

- Additional evidence provided to me by the FTC, including:

  - o Screenshots from Kindle Fire tablets, which I understand the FTC produced at FTC_Amz_00003183-3233;

  - o Camtasia recordings, which I understand the FTC produced at FTC_Amz_00003274-75;

- Equipment made available to me by the FTC:

  - o One Fire HD7 tablet (2nd Generation, OS 3.1), 1280x800px resolution;

  - o One Fire HD7 tablet (3rd Generation, OS 4.5.4), 1280x800px resolution;

  - o One Fire tablet HD 8.9 (2nd Generation, OS 8.5.1), 1920x1200px resolution;

  - o One Fire HDX 7 tablet (3rd Generation, OS 4.5.4), 1920x1200px resolution.

- Other documents cited in this report.

IV. Methods Used

My evaluation of this matter is based primarily upon my academic and professional expertise in Human-Computer Interaction ("HCI"), and relevant research conducted by myself as well as other academics and professionals. In this section, I will provide a brief introduction to HCI, and describe the primary method I used, a usability inspection, in detail.

A. What is HCI?

Human-Computer Interaction, or HCI, is the study of how humans engage with computer interfaces. HCI is rooted in the field of human factors and ergonomics, which studies how humans interact with the physical world in order to improve the effectiveness, safety, and usability of specialized machines. With the advent of computers, HCI emerged as a field distinct from the study of human factors. In its early days, HCI research was still closely tied to human factors, focusing on the physical aspects of computer use, such as the shape of a keyboard or mouse. After command-line interfaces gave way to graphical displays, the field expanded to include a range of topics relating to the visual aspects of computer displays, from human visual perception (how the eye processes sensory data) to human cognition (how the brain interprets and classifies information). As this range suggests, HCI is a broad interdisciplinary field that can include experts from a number of university departments, including computer science, engineering, linguistics, psychology, and information science (my domain).

In addition to being an academic field, HCI is also an applied discipline with a strong presence in the private sector. Practitioners drive advances in HCI as much as—if not more than in some areas—academics do, and leading journals such as the *Journal of Usability Studies*[1] and

---

[1] http://www.upassoc.org/upa_publications/jus/jus_home html

conferences such as ACM SIGCHI (Conference on Human Factors in Computing Systems)[2] publish work from both groups. Many major technology companies employ in-house HCI practitioners, often under titles such as Information Architect or User Experience Researcher, who collaborate with visual designers to develop software and website interfaces. These practitioners are an integral part of the design and development process, and large technology companies typically will not launch online and software products until HCI practitioners have evaluated them. Companies also seek advice from independent HCI consultancies.

B. Background on Methods Used

HCI findings are typically derived from data gathered using both quantitative and qualitative methods, such as: usability inspections, usability tests, focus groups, surveys, interviews, the examination of customer feedback (both solicited and unsolicited, *e.g.*, through customer complaints), and others. HCI research has yielded many general heuristics—or principles of usability—as well as more domain-specific guidelines that can be applied to evaluate any interface. These principles and guidelines are important tools for HCI practitioners tasked with evaluating software applications. By conducting a usability inspection (also called a "heuristic evaluation")—that is, reviewing an application interface for compliance with an accepted set of heuristics—HCI experts can identify common usability problems in an interface. Many of these principles are based upon a concept called "user-centered design" and are employed internationally and embraced by leading websites, design consultants, and user experience/usability professionals. Obtained through a variety of methods, user-centered design seeks to understand application and interface design from the customer's (user's) point of view.

---

[2] http://chi2016.acm.org/wp/

In this case, I used a usability inspection to evaluate the interface in question for conformity with canonical heuristic guidelines and principles created by both academic researchers and professionals (citations made throughout as applied). I did not separately perform user testing as part of this evaluation. As HCI heuristics and guidelines are derived from empirical research, a usability inspection can provide similar insights to those generated through user testing, particularly when reviewing interfaces for conformance with basic principles.[3] The overriding goal is to identify major flaws that should ideally be addressed prior to launching a website or other interface, a sort of "pre-flight checklist." But usability inspections are also commonly used for examining existing interfaces for flaws after they have been launched and put into use, particularly when user feedback or additional testing has identified potential problems. In this report, I limit my analysis on the user flow as it relates to the tasks implicated by the FTC's questions (specifically, making an in-app purchase and requesting a refund for one), rather than a usability analysis of the entire Appstore, Fire tablet, or other specific tasks (such as settings configuration, or searching for apps in the Appstore) not related to making in-app purchases or the returns process.

Leading researchers, such as Jakob Nielsen, Ph.D., Professor Ben Schneiderman, Ph.D., Donald Norman, Ph.D., and Bruce Tognazzini, have distilled sets of the most fundamental usability principles, for example: "The system should always keep users informed about what is going on, through appropriate feedback within reasonable time."[4] They have also created sets of guidelines that address web design at a more granular level, for example: "Do put the most

---

[3] Chisnell, Dana. "What you really get from a heuristic evaluation." UX Magazine, Feb. 19, 2010.
http://uxmag.com/articles/what-you-really-get-from-a-heuristic-evaluation
[4] http://www.useit.com/papers/heuristic/heuristic_list html; see also
http://www.usability.gov/methods/test_refine/heuristic.html; http://www. asktog.com/basics/firstPrinciples html

important information on a Web page at the middle-top of the page because that text: [w]ill be seen first, and [t]ext at the bottom of a page is rarely seen."[5]

My analysis of the questions at issue focuses on the following aspects most relevant to a usability inspection of disclosures or other information communicated to users by an interface:

- Placement and prominence: A key issue for evaluating whether a notice is effective is its placement on the screen in relation to other elements (*e.g.,* where is it in the visual hierarchy)[6], as well as how prominent it is (*e.g.* does it compete with other objects on the screen?).[7] Prominence refers to how conspicuous the disclosure is in relation to other textual and graphical elements on the page, as well as the grouping and alignment of the items, which provide a visual flow for the user to follow.[8]

- Appearance: Appearance refers to the visual elements of the disclosure, such as font selection, text size, and color.[9] In conjunction with placement and prominence, these elements influence how conspicuous the disclosure is to the user.

- The architecture of the user flow: In order to understand the context in which a disclosure may be presented and the resulting decision(s) the user must make, it is necessary to document the *flow*, *i.e.* the steps one must take through the application to arrive at a decision point, and the options available to the user after making a specific choice. By documenting these paths we can discover potential flaws in how information is presented to users as well as gain insight into why users take particular actions.[10] As noted earlier,

---

[5]http://www.humanfactors.com/downloads/dec02.asp
[6] Johnson, Jeff. Designing With The Mind in Mind. Morgan Kaufmann, 2010. P. 30.
[7] Tidwell, Jenifer. Designing Interfaces. O'Reilly: Sebastapol, CA. 2006, p. 94.
[8] Ibid.
[9] Nielsen, Jakob *et al*. Prioritizing Web Usability. New Riders: Berkeley, CA. 2006.
[10] Rosenfeld, Louis *et al*. Information Architecture for the Web and Beyond. O'Reilly: Sebastapol, CA. 2015.

my analysis is limited to the flow related to the specific tasks raised by the FTC: making

an in-app purchase, and attempting to request a refund for an IAP.

- System status and feedback: Documenting what the application is telling the user about what is currently happening within it and what occurs after she makes a decision is crucial for determining if the users understand where they are in a flow and what their options are.[11] The system status includes task interruptions: instances where the user is interrupted from their primary goal to attend to a completely different task.[12]

- Terminology: The terms used to communicate choices, system status, and feedback to the users are important for helping them understand system functions. To the extent that there is a mismatch between the terms used by the application and those understood by the users confusion can result.[13] In addition, information presented in "legalese,"such as in dense, legal documents such as Terms of Use documents, typically is written in a form and language that many users cannot understand and is not effective for conveying information consumers must know prior to making a purchase.[14]

- Readability: Users generally scan online text rather than read it thoroughly, and this is particularly true with long paragraphs of text. According to Nielsen, "dense blocks of text are a major turn-off for Web users," suggesting to them that they will have to "work hard to extract the information they want."[15]

---

[11] Nielsen, Jakob. "10 Usability Heuristics for User Interface Design." Alertbox, Jan. 1, 1995. Available at: http://www.nngroup.com/articles/ten-usability-heuristics/; Johnson 2010, p. 131.

[12] Albers, Michael. Human-Information Interaction and Technical Communication: Concepts and Frameworks. IGI Global: Hershey, PA. 2012.

[13] Johnson 2010, p. 131. Loranger, Hoa. "Avoid Category Names That Suck. Alertbox, Dec. 15, 2013. Available at: http://www.nngroup.com/articles/category-names-suck/.

[14] Nielsen, Jakob. "Regulatory Usability." Alertbox, Sept. 3, 2000. Available at: http://www.nngroup.com/articles/regulatory-usability/.

[15] Nielsen 2006, p. 81.

The research literature (both as cited above and throughout) demonstrates that all of these aspects are critical to the effective disclosure of information.[16] Placement, prominence, and appearance are crucial factors in ensuring customers can locate a disclosure. These concepts are tied to the visual hierarchy and layout of both graphical and textual elements in an interface. As Tidwell phrases it, "the most important content should stand out the most, and the least important should stand out the least."[17] The point at which the disclosure is placed in the user flow has a direct impact on whether it is viewed and acted upon. The feedback the system provides to the user about what state it is currently in and what their options are has a direct effect on the user's comprehension of a disclosure and the actions they can or cannot take as a result. The terminology used in a disclosure, as well as its readability on screen, also impact whether the disclosure is effective.

Finally, with respect to whether disclosures and, relatedly, terms of service or use documents are generally viewed, read, and understood, I refer both to my own and others' research on privacy.[18] Research on disclosures to date has focused primarily upon privacy policies[19] and other domain-specific areas, such as financial disclosures.[20]

---

[16] These principles also are reiterated in FTC guidelines: .Com Disclosures: How To Make Effective Disclosures in Digital Advertising (March 2013).

[17] Tidwell 2006.

[18] Jennifer King. "How Come I'm Allowing Strangers To Go Through My Phone? Smartphones and Privacy Expectations." Presented at the Workshop on Usable Privacy and Security for Mobile Devices (U-PriSM) at SOUPS, July 2012; Hoofnagle, Chris; King, Jennifer; Li, Su; and Turow, Joseph. How Different are Young Adults from Older Adults When it Comes to Information Privacy Attitudes and Policies? April 14, 2010. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1589864; Chris Jay Hoofnagle and Jennifer King. "Research Report: What Californians Understand About Privacy Offline." May 15, 2008. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1133075.

[19] Carlos Jensen and Colin Potts. 2004. Privacy policies as decision-making tools: an evaluation of online privacy notices. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (CHI '04). ACM, New York, NY, USA, 471-478. DOI=10.1145/985692; Nathaniel S. Good*, et al*. Noticing notice: a large- scale experiment on the timing of software license agreements. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (CHI '07), 2007. ACM, New York, NY, USA, 607-616. DOI=10.1145/1240624.1240720; McDonald, Aleecia, et al. A Comparative Study of Online Privacy Policies and Formats. PETS 2009. Available at: http://lorrie.cranor.org/pubs/authors-version-PETS-formats.pdf.

V. Analysis

In order to examine the questions presented by the FTC, I focused my usability inspection on the following areas within the Amazon app ecosystem on the Kindle Fire tablet:

1. The pre-download In-App Purchase (IAP) disclosure, which is located on an app's individual "detail page" within the Amazon Appstore on the Fire tablet.[21]

2. The IAP process (which I will also describe as a purchase "flow") by which one makes an in-app purchase within an app.

3. The process by which a consumer might attempt to seek a refund, as accessed via two paths: the IAP Order Confirmation email sent by Amazon to their customers for any in-app purchase, and the Amazon.com online main orders page.[22]

After conducting my analysis of the disclosures and the purchase process, I then reviewed customer complaints supplied by Amazon that had been coded as relevant to IAPs in order to determine whether the concerns articulated by Amazon's customers supported my analysis, and whether the complaints raised additional concerns. I concluded with an analysis of the potential refund process.

The primary question the FTC articulated to me was whether Amazon effectively conveyed certain information to adult account holders. My analysis is conducted based on how the information is presented and communicated to <u>adults</u>. I have not conducted this analysis with the assumption that children—including pre-verbal infants (who can nonetheless deduce how to navigate simple apps), younger children who cannot read but can contextually learn to play apps and make IAPs without understanding the concept of purchasing, and older children who can

---

[20] GARRISON, L., HASTAK, M., HOGARTH, J. M., KLEIMANN, S. and LEVY, A. S. (2012), Designing Evidence-based Disclosures: A Case Study of Financial Privacy Notices. Journal of Consumer Affairs, 46: 204–234.
[21] I did not conduct my analysis using Amazon Appstore online site, located at: http://www.amazon.com/mobile-apps/b/ref=topnav_storetab_mas?ie=UTF8&node=2350149011.
[22] This page can also be accessed on a tablet computer by using a web browser.

read and may or may not understand that they are making real purchases—are the target audience for IAP disclosures or information about the ability to restrict IAPs or obtain refunds for unauthorized IAPs.
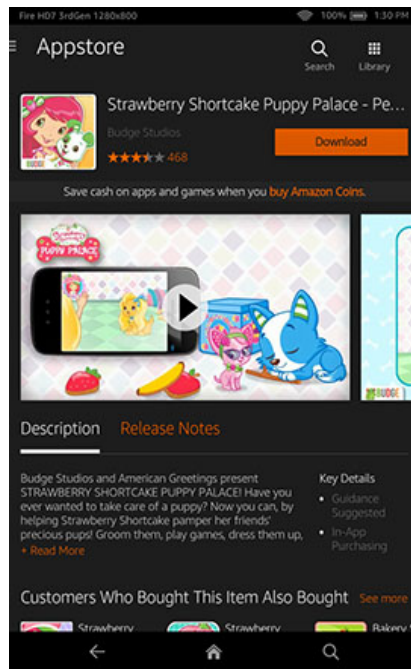

Figure 1: Example of an application detail page in the Appstore as viewed on a Kindle tablet

A. Analysis of the In-App Purchase Disclosures

With respect to in-app purchases, the FTC asked me to examine the following three questions:

- Did Amazon effectively convey to consumers downloading an in-app charge app (an app containing in-app charges) from the Amazon Appstore that children could incur in-app charges?

- Did Amazon effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that children could incur in-app charges without parental involvement?

- Similarly, did Amazon effectively convey to consumers downloading an in-app charge app from the Amazon Appstore that they would have to change their device settings to prevent children from incurring in-app charges without parental involvement?

My analysis begins with the underline application detail page, which is the location within the Appstore where a user learns more about a specific app and makes the choice whether to download (and purchase if the app is not free) and install it to the user's Fire tablet. It is also the primary location where the disclosure about the existence of IAPs for a particular app resides.

The disclosure on the app detail page (hereinafter referred to as the "Note") is important for disclosing IAPs to users who are downloading an app because apps that contain IAPs were not differentiated from other apps in the top level categories of the Appstore. Up until September 2015, the Amazon Appstore only had two primary purchase classifications: 'free' apps and 'paid' apps (apps are also classified by type, such as games, education, productivity, etc.).[23] A parent traversing the children's section of the Appstore would view apps classified as 'free' or 'paid,' with no differentiation at the directory level that the app could contain IAPs. For the parent who assumed a free app was, in fact, free of all charges, the IAP Note on the app detail page was the only information that communicated otherwise. At least one academic research study has documented that the confusion between apps being advertised as free but, in fact, not free to use has led to consumer disappointment and lower consumer ratings.[24] Given that the very concept of an in-app purchase is a recent construct, it is likely that a sizable number of consumers were unfamiliar with the existence of IAPs starting in 2011 and thus many would not understand that a free app could have additional costs associated with it. Design expert Jakob Nielsen urges designers as a best practice to "disclose additional fees as soon as possible," and

---

[23] This changed with the introduction of Amazon Underground in September 2015; see the following section for details about this program.

[24] Hammad, Khalid et al. "What Do Mobile App Users Complain About?" IEEE Software, May/June 2015, p.70-77. Available at: http://www.computer.org/csdl/mags/so/2015/03/mso2015030070-abs html. According to the researchers, "When an app was free to download but not free to use, the users were disappointed and often gave low ratings."

not wait until the end of the checkout process in order to avoid user confusion and anger about additional fees.[25]

Figure 2: Screenshot from a Amazon Underground ad, Sept. 2015.

Amazon recently acknowledged the potential for confusion with apps that include IAPs with their launch of Amazon Underground in September 2015. Underground is promoted with the declaration that: "Many apps and games that are marked as "free" turn out not to be completely free. They use in-app payments to charge you for special items or to unlock features or levels."[26] The Underground app, in contrast, promises content that is "*actually* free," a clarification that appears to speak directly to this confusion. Further, apps with this designation now sport a banner across their icons in the Appstore that reads "*Actually* Free," among other

---

[25] Nielsen 2006.

[26] Amazon Underground marketing copy, visited 8.26.15, available at:
https://www.amazon.com/gp/feature.html?ie=UTF8&docId=1003016361&ref_=mas_surl_undrgrnd&ref=spkl_2_0_
2176700182&qid=1441235695&pf_rd_p=2176700182&pf_rd_m=ATVPDKIKX0DER&pf_rd_t=301&pf_rd_s=des
ktop-signpost&pf_rd_r=1P1HRHZZB2PGYVM7ACK2&pf_rd_i=underground.

changes.[27]

Further, the IAP Note is important because there is a lack of educational material on the tablet that defines what IAPs are. No information about IAPs was provided in the Fire tablet set-up process.[28] Further, the User Guide (presently, and presumably in the past) does not define IAPs explicitly; when navigating the User Guide -> Settings and Security -> Parental Controls menu on a Fire tablet, the Guide notes that one can "restrict access to certain features on your Fire Tablet, such as web browsing or purchasing from the Amazon Appstore."[29] Under "Buy and Download Games and Apps," the Guide notes that "some games and apps offer in-app purchasing" and provides the steps to turn off IAPs in the Settings, but the page does not define what IAPs are.[30] On the Amazon website there are help pages that describe in-app purchases and how to turn them off, but it is unclear whether many users could find them. In order to locate them, one must navigate to them through Amazon's Help hierarchy or search from Amazon's Help page using the correct term (*e.g.*, "in-app purchase(s)") to find them.

1. **Placement, Prominence, and Appearance of the In-App Purchase Note**

Next, I turn to the structure, or information architecture, of the app detail page in order to analyze the effectiveness of the IAP Note with regards to its placement, prominence, and appearance. The IAP Note itself is thirty-six words in length and presently reads as follows: "PLEASE NOTE: This app contains in-app purchasing, which allows you to buy items within the app using actual money. On Amazon devices, you can configure parental controls from the

---

[27] On the app details page, there is now messaging at the top of the page which reads "This app and its in-app purchases are *actually* free. Learn more." In addition, the app note has been removed from the description text, and the Key Details badge now reads "In-App Purchasing (Free with Amazon Underground)."

[28] If one navigated the Appstore Terms of Use, the document included a note only that Amazon "may offer digital products for sale that are intended to be accessed or used within an App." Amazon Appstore for Android Terms of Use, updated 9/6/2012, Sections 2.3 and 2.4. AMZN000392.PDF.

[29] Kindle Tablet User Guide, Fire OS 4.5.4. Accessed Sept. 2, 2015.

[30] Kindle Tablet User Guide, Fire OS 4.5.5. Accessed Oct. 12, 2015.

device Settings menu by selecting Parental Controls."[31] After Amazon launched IAPs in November 2011, the company began manually appending the Note to the end of all app descriptions on app detail pages.[32] At that time, this location was the only place at which a user might view an IAP disclosure about a particular app.

An app's description is written by the app's developer, and it can vary in length, from a single sentence to multiple paragraphs of text. Because of the inconsistency of description lengths, when the IAP Note is appended to the end of the description text, it is inconsistent whether it appears above or below the fold (that is, on or off the screen) when the device is viewed vertically.[33] This *placement* implies that the information is not urgent or required reading as it is "low in the visual hierarchy" and provides "additional information" rather than information central to the page's purpose.[34] Furthermore, as I will discuss below, due to the auto-truncation of the description text it is possible (even today) for the IAP Note to <u>never</u> be viewed unless the user takes an explicit action to expand the description.

Amazon describes the notice as "prominent," claiming it "provides Amazon's customers a conspicuous, pre-sale explanation of in-app purchasing."[35] I disagree. Though Amazon appends "PLEASE NOTE:" (in all caps) to the beginning of the IAP Note, given the varying length of app descriptions the Note could easily appear at the end of multiple paragraphs of text,

---

[31] The company stated in their interrogatory documents that the content of this disclosure has changed over time.
[32] According to document 2014.5.30_Memorandum_Appendix (p.3, fn.1), Amazon updated this process to occur automatically after some developers realized they could edit their app descriptions and remove the notice. But for some duration of time, IAP disclosures were applied manually by the company and thus were not consistently placed.
[33] In all cases when I discuss the viewable area on the screen, I am referring to the device in its vertical rotation unless otherwise noted. The horizontal rotation forces more content below the fold, and thus I conducted my analysis always examining the device in its vertical orientation in order to allow the maximal display of content.
[34] Wroblewski, Luke. Site-Seeing: A Visual Approach to Web Usability. Hungry Minds: New York, NY. 2002, p. 242.
[35] 2014.5.30_Memorandum_Appendix, p. 3

significantly reducing the likelihood that it will be viewed at all.[36] Research on typically sized desktop or laptop displays demonstrates that people prefer to skim, rather than read lengthy amounts of text;[37] this finding is even more relevant to mobile and tablet devices given the smaller display area and text size.[38] The longer an app's description, the less likely most users are to read it in its entirety and make it to the Note text. Further, app developers can include all caps in their descriptions, making it less likely that the "PLEASE NOTE" will stand out as prominent.

Furthermore, during or after the second generation of Fire tablets was released, the company introduced an interactive "+ Read More" feature to the app description, which shortens the viewable length of the description. When "+ Read More" is clicked, the description expands to its full length (which may require scrolling downward to read the description and to find the IAP Note, depending on the size and vertical/horizontal orientation of the device). Prior to the incorporation of this feature, unless the app description was short, the IAP Note was likely to
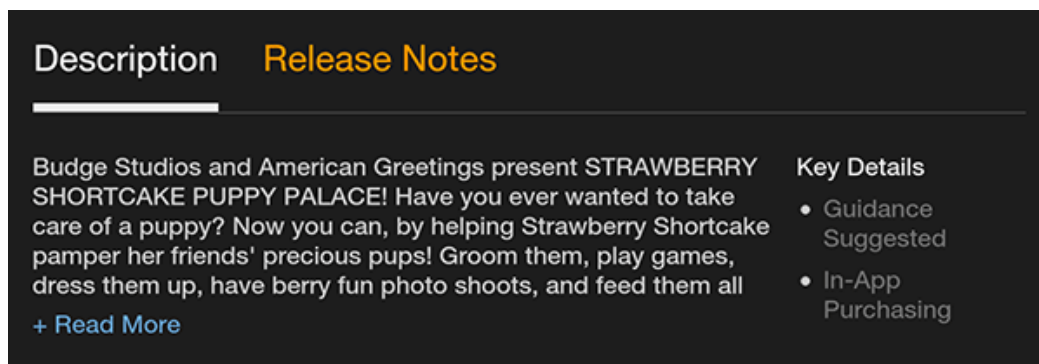

Figure 3: An app description with the +Read More link

---

[36] Alternatively, if the app developer writes a brief 1-2 sentence app description, then the IAP disclosure will likely always appear above the fold. However, after making a random selection of apps and viewing their descriptions in the App Store, I found that extremely short app descriptions are rare.
[37] Nielsen, Jakob. "How little do users read?" Alertbox, May 6, 2008. Available at: http://www.useit.com/alertbox/percent-text-read.html.
[38] Nielsen, Jakob. "Mobile Content: If In Doubt, Leave It Out." Alertbox, Oct. 10, 2011. Available at: http://www.nngroup.com/articles/condense-mobile-content/.

appear "below the fold," or the default viewing area, when the tablet was held in either the horizontal or vertical (more spacious) orientation. Please see Appendices Three through Five for a comparison of the default viewable area above the fold on different versions of Fire tablets. In general, prior to the incorporation of the "+ Read More" link, a user would have to scroll downward below the fold in order to view the IAP Note.

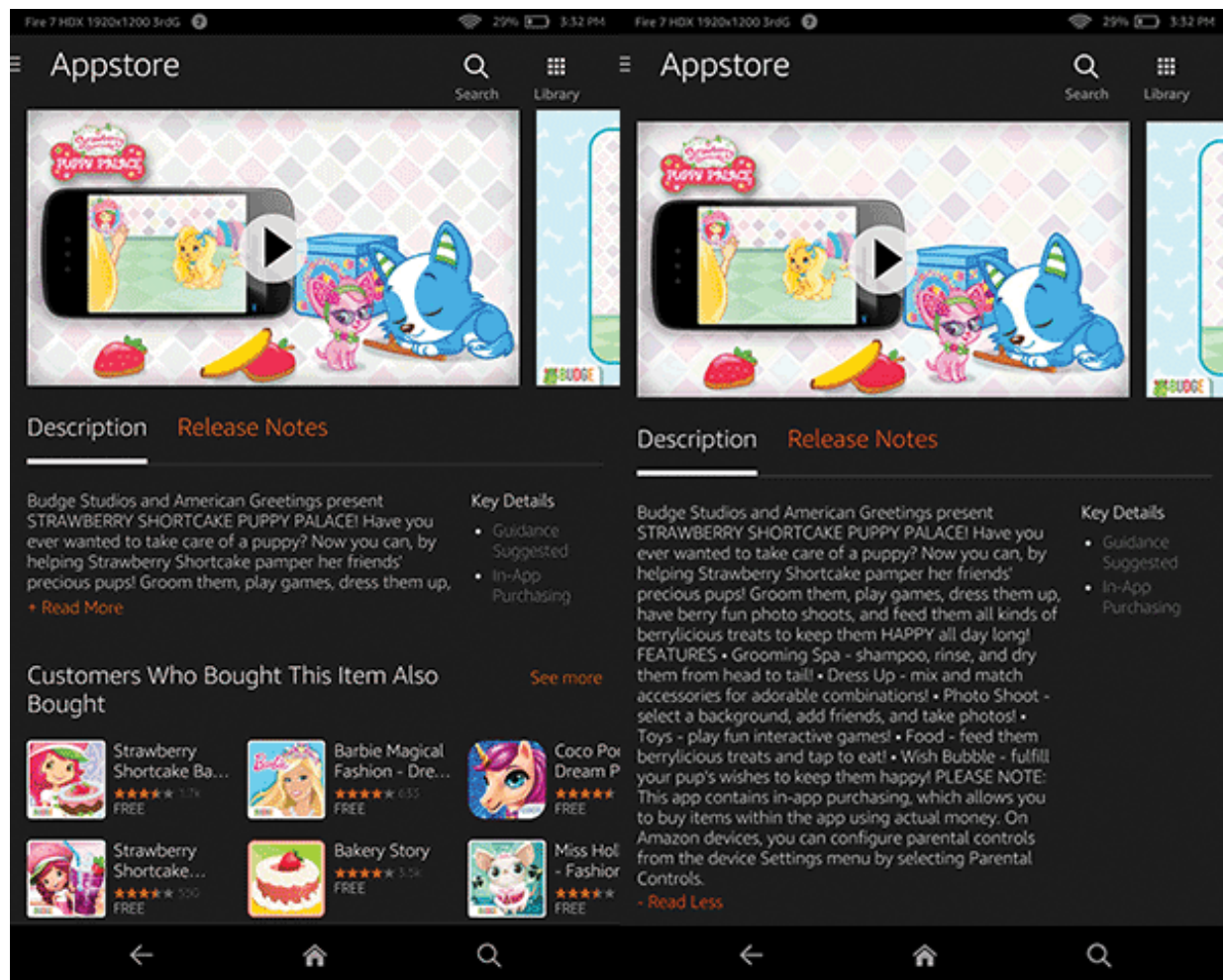With the incorporation of the "+ Read More" link the IAP Note was usually hidden

Figure 4: Comparison of app description in default mode and expanded after clicking +Read More.

unless the app's description was extremely short.[39] It appears that if an app description exceeds

---

[39] It appears that the text of this link varied over time; at least one screenshot provided by Amazon presents it as "See All".

five lines of text (on third generation or newer Fire tablets; nine lines on second generation tablets), then the "+ Read More" link is automatically generated to shorten the description. This feature usually ensures that the IAP Note only viewable if the user selects "+ Read More" and chooses to read the entirety of the app description (which may require scrolling).

Collapsing the app description at the expense of hiding the IAP Note negates the Note's importance. This placement, both alone and in combination with the "+ Read More" link, ensures that this disclosure is not conspicuous (and in fact, usually not visible) unless the app description happens to be exceptionally short.

Finally, despite the all caps "PLEASE NOTE" admonition at the start of the Note, the fact that the appearance of the text is otherwise identical to the rest of the app description mitigates its appearance and can make it difficult, if not impossible, to notice. While Amazon may have used all caps at the start of the Note in order to try to draw attention to it, by not
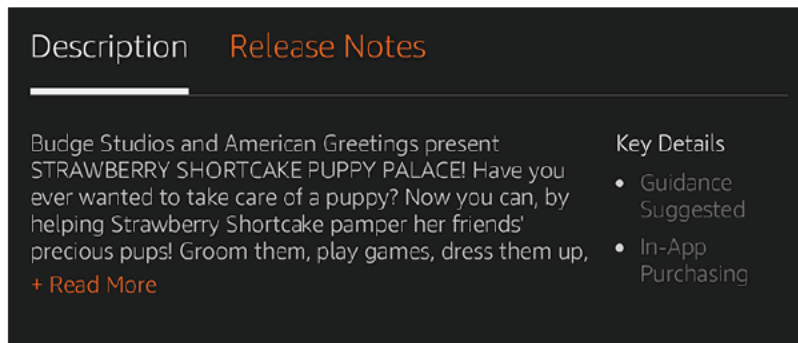

Figure 5: Screenshot of an app home page. The Key Details "badge" is to the right of the app description.

distinguishing the Note in any other way (such as by using a contrasting color or different sized font, or even starting it on a new line) the Note is ineffective. Figure 4 provides an illustration of this problem. As the app description in Figure 4 demonstrates, the creator of the app also used all caps at different points in the app description text; this use, in combination with the length of the description, contributes to the Note blending in with the preceding text.

For these reasons, the poor placement, lack of prominence, and the appearance of the IAP

Note is ineffective at communicating to consumers downloading an app containing in-app charges from the Amazon Appstore that children could incur in-app charges at all, or without parental involvement, or that users would have to change their device settings to prevent children from incurring in-app charges without parental involvement (as I will discuss in more detail in Section V.3).

2. Placement, Prominence, and Appearance of the Key Details Badge

In June 2013, Amazon added a feature called "badging" to the app detail page, which was "automatically inserted on the detail pages of apps that offer in-app purchasing."[40] Labeled "Key Details," the badge appears "above-the-fold" on second-and third-generation Kindle Fire
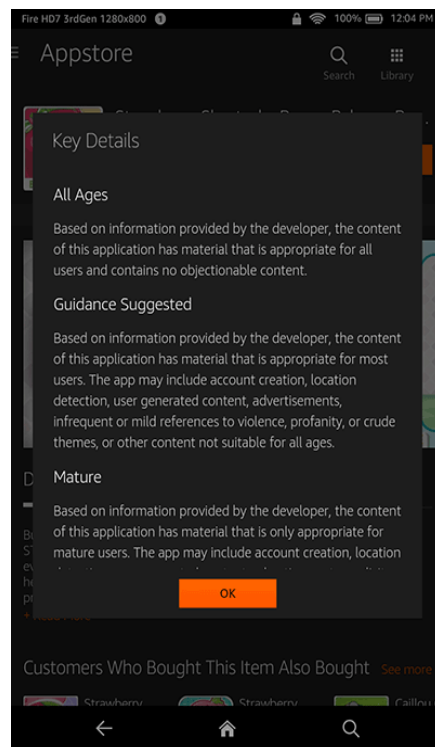

Figure 6: Default view when Key Details overlay is opened

devices. The badge is a bulleted list of topics located to the right of the app description on the

---

[40] Amazon.com, Inc. Memorandum to FTC 5.30.14.

app home screen (Figure 5). If a consumer taps on any element in the list, an overlay window opens with a list of short notices about the listed topics (Figure 6). While the badge was implemented for all second generation Fire devices as well as on the Amazon Appstore for Android, it was never deployed on first generation Fire tablets.[41]

The insufficiency of the IAP Note discussed in the previous section means that in the majority of cases, the badge alone must effectively convey the presence of IAPs, as the two elements do not work together to educate the user. The placement of the badge is consistent
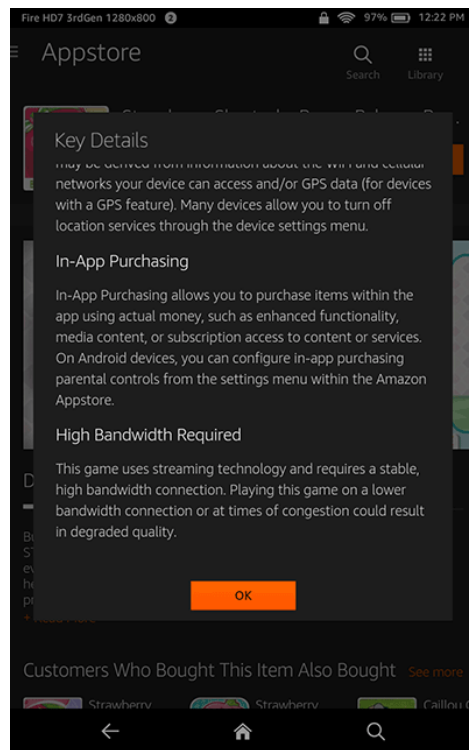

Figure 7: Bottom of Key Details overlay where IAP disclosure is located.

across devices, though the light grey color of the details text makes it visually less prominent than the other text on the page and thus less noticeable. In addition, the item does not appear clickable; Amazon uses either orange or blue on different generations of the tablet to denote

---

[41] Amazon letter to Duane Pozza, Nov. 16, 2012.

clickable links, and the badge does not implement this design choice. The title, "Key Details," suggests to the user that it contains a summary of information that they <u>may</u> wish to know, but in its current form, it does not communicate to the user who is concerned about the cost of the app that it contains information that he or she <u>must</u> know regarding potential charges prior to downloading or using the app. For example, it has no visual or other obvious connection to the IAP Note or to the purchase process. Even if the user clicks on the overlay, the explanation given in the expanded overlay is abstract. It contains no direct discussion of costs and the fact that IAPs have real costs associated with them that will result in charges to the customer's Amazon account.

There are other elements of the badge's implementation that give cause to question its effectiveness in communicating that children could incur in-app charges and do so without parental involvement. First, one must be familiar with the term "in-app purchasing" for the element to be immediately effective. I will discuss my concerns regarding this term and the wording of both the IAP Note and the badge in the following section. Second, it does not appear at the top of the list if other key details are present (Figure 7). It is unclear what the rationale is that governs the priority of which items appear first when multiple items are present, but for the purposes of this analysis, it is notable that in-app purchases are not at the top of the list.

Third, when you touch the "Key Details" area, it appears the entire region is a single element, rather than each item being an independently touchable link. Therefore, when the pop-up overlay opens, it always opens at the top of a list of (currently) eight items, with "In-App Purchasing" at location seven of eight. The user must scroll downward for several screens to reach the IAP description. It is not clear how this list is ordered, as is not in alphabetical order.

In sum, the Key Details badge does not provide effective notice of in-app purchases.

While its placement is consistent, its visual prominence is poor relative to other elements on the page. Further, users must be familiar with the term "in-app purchases" for the badge to have any impact, and the explanation provided within the overlay, if a user even determines it can be clicked, is vague and poorly placed.

3.   Language and Content of the In-App Purchase Disclosures

The language and content of the IAP Note and definition in the Key Details badge are critical to disclosing in-app purchases in a brief and concise statement. Given the fact that in-app purchases can quickly become quite costly, the importance of communicating their <u>cost</u> is crucial. Additionally, it is likely that there is always some proportion of the user population who has never encountered an in-app purchase (or is generally unfamiliar with the concept of "digital goods" or "virtual goods").

A key detail missing from both the IAP Note as well as the in-app purchasing explanation in the Key Details overlay is the feature that is alluded to—but not explicitly disclosed—by the inclusion of the link to Parental Controls: that one must activate a separate setting to limit in-app purchasing. Instead, both statements leap from a definition of IAPs to a suggestion that the user can "configure in-app purchasing parental controls," which are set to off by default on every new or reset Fire tablet. Further, there is no indication on the app details page, the IAP Note, the Key Details badge, or the Key Details overlay of the current status of the Parental Controls on the tablet. The descriptions are unnecessarily vague—they do not state clearly that in-app purchases need to be restricted by configuring an option within parental controls settings. Furthermore, Fire tablets have an additional setting that disables all in-app purchases, yet this option is not mentioned in the IAP disclosure, the Key Details overlay, the purchase flow, or in the Parental

Controls section in Settings.[42] This option is available through the device's main settings flow (Settings -> Apps -> App Settings; see screenshots at Appendix 2). Amazon could have clearly articulated that that IAPs could be disabled or restricted simply by using this option at these key points of contact but did not do so.

Further, using the term "parental controls" to communicate purchase restrictions also makes the disclosure less effective in informing consumers that they had to change their device settings in order to prevent children from incurring in-app charges. The development of parental controls began in the mid 1990s out of a desire to block children from viewing pornography and other inappropriate content, with the adoption of the V-Chip for televisions[43] and the first generation of internet-filtering controls in the late '90s. Purchase restrictions did not emerge until the late 2000s with the introduction of smartphones and tablet computers and in-app purchasing. Thus, for some proportion of the user population, pre-existing familiarity with the term may trigger primary associations with <u>content</u> restriction rather than <u>purchase</u> restrictions. To rely upon the term "Parental Controls" in place of articulating the fact that <u>purchases</u> can be restricted is likely to introduce confusion or an additional learning barrier for novice parents or users who are not parents attempting to familiarize themselves with the system.[44]

4. Summary

The IAP Note suffers from several flaws: its placement is poor; its appearance does not distinguish it from the surrounding text; and not only is it not prominently placed on the screen, it is likely to not even be seen on many, if not most occasions given the fluctuations of the length

---

[42] Apparently this setting was available in Version 1 of Parental Controls and remains available on the Amazon Appstore for Android (non-Fire) devices. See 2012.10.8 Letter to Duane Pozza, pg. 2.
[43] http://transition fcc.gov/vchip/#history
[44] In October 2012 Amazon introduced FreeTime in addition to their existing Parental Controls as an additional means for restricting children's usage and content of the Fire tablet. Because the aspects I am analyzing do not link to FreeTime, I am not including it in my analysis as it is an additional step a user must take to implement it.

of the app descriptions and the impact of the <u>+Read More</u> link, as well as the appearance of the IAP Note itself. In response to Questions One, Two, and Three, this disclosure does not effectively convey to consumers that children can incur IAPs, that they can incur in-app charges without parental involvement, or that they would have to change their device settings in order to prevent children from incurring in-app charges.

For experienced users who know what IAPs are, the Key Details badge may provide a quick method to scan an app's detail page to locate specific information that may help them to decide whether or not to download an app. However, for novice users or those unfamiliar with IAPs, it is unlikely that this badge gives sufficient notice about IAPs, specifically because they are unlikely to be familiar with either the term or the concept. Additionally, if the app was classified as "free," many users were not likely to know that a free app would have any additional costs attached. As discussed above, Amazon has only recently chosen to differentiate the apps that do not contain additional costs. Thus, in response to Questions One, Two, and Three, my evaluation is that the Key Details badge does not effectively convey to all consumers that children can incur in-app charges, that they can incur in-app charges without parental involvement, or that they would have to change their device settings to prevent IAPs. Further, the use of the term Parental Controls and the language used by Amazon in the IAP Note and Key Details badge and overlay does not effectively convey to consumers that children can incur IAPs without parental involvement, or that they would have to change their device settings in order to prevent children from incurring in-app charges.

B. *Analysis of The In-App Purchase Flow*

With respect to the in-app purchase flow, the FTC asked me to examine two questions:

- Did Amazon effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain additional in-app charges without password reentry?

- Similarly, did Amazon effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring additional in-app charges without password reentry?

The IAP flow has continuously evolved since its introduction. However, one aspect has remained consistent: Amazon requires that devices be linked to a payment method so that purchases do not require reentry of billing information. All in-app purchases must utilize pre-stored billing information. This removes steps from the purchase process: the user simply selects an item for purchase, confirms the selection, and receives a confirmation without selecting a payment method or billing address. Upon launch of IAPs in November 2011, the default purchase flow allowed IAPs without entry of billing information or purchase requirement such as a password. The user simply had to select the item, confirm the item on an Amazon pop-up screen, after which Amazon displayed a purchase confirmation screen. The process is designed to facilitate purchasing visually and easily by highlighting the buttons (in orange) one must click in order to move through the purchase flow.

In March 2012, the company added a password requirement for all IAPs over a certain price point. In February 2013, the company introduced a "high-frequency" password prompt for a second in-app purchase made within five minutes of the first IAP. Entering the password in response to this prompt opened a sixty-minute window where subsequent purchases could be made without reentering the account password. In May 2013, the company introduced a "High-

Risk" password prompt for certain apps. Entering the password in response to this prompt opened a fifteen-minute window where subsequent purchases could be made without reentering the account password. With the introduction of second generation Fire tablets in May 2013, first-time IAPs required the entry of the account password while subsequent purchases might not. Lastly, in June 2014, users were given the option of indicating after the first time they made an IAP whether they wished to require passwords for subsequent IAPs.

Since the IAP process has evolved over time, I will analyze the password prompts Amazon introduced stage-by-stage to answer Question 4: Whether Amazon effectively conveyed to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain additional in-app charges without password reentry; and Question 5: whether Amazon effectively conveyed to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring certain additional in-app charges without password entry.

1.   Stage 1: November 2011—February 2013

From November 2011 until March 2012, there was no password requirement by default for IAPs. From March 2012 until February 2013, there was no password requirement by default for IAPs unless the IAP exceeded a certain price point. For charges exceeding that price point, Amazon displayed a password prompt that did not contain any information about whether children could incur other in-app charges without password entry (and sometimes did not mention in-app charges at all). Users who faced a password prompt during this time period likely would not understand that children could incur other in-app charges without password entry or that they would have to change their device settings to prevent children from incurring other in-
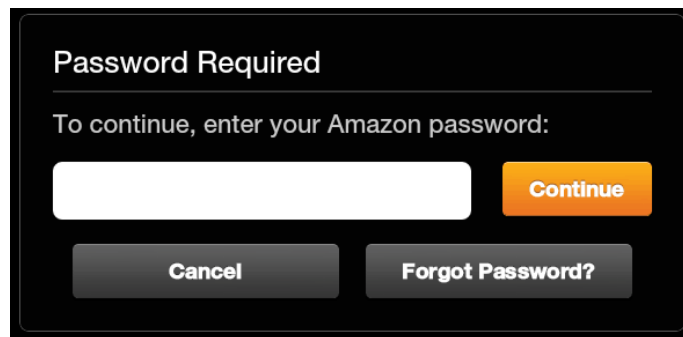
Figure 8: The password screen added between the selection and purchase confirmation screens

app charges without password entry.

2. Stage 2: February 2013—June 2014:

Beginning in February 2013, Amazon introduced new password prompts before certain IAPs, including the "high-frequency" and "high risk" prompts that opened billing windows after password entry in certain circumstances. Based on the materials I reviewed, billing windows associated with the "high-frequency" and "high risk" prompts were not communicated to users during the purchase flow, such as with messaging on the purchase or confirmation windows, or with any feedback while attempting purchases. Given their complexity and the lack of feedback about the system's status (that is, what happens upon password entry), I find it highly unlikely that most consumers would have understood the billing windows that were in place or what triggered them. Instead, this approach could give users the impression that password protections existed that in fact did not. For example, a child could attempt two IAPs within five minutes, triggering the password prompt. The parent's first exposure to the IAP flow may have been the password prompt for the second IAP. If the parent had entered his or her password, he or she would not have been informed that their password entry had just opened a sixty-minute window that would allow his or her child to make certain additional purchases without parental knowledge or involvement. The password prompt, absent any messaging about the purchase

window, appears misleading, conveying to the user that a password requirement was in place, but not clarifying that the requirement was only for the second IAP. In fact, it is reasonable to conclude that a user, upon seeing the password prompt, might assume incorrectly that all subsequent IAPs would be password restricted. The same analysis holds true for the "high-risk" prompt.

In May 2013, the company implemented a new password prompt that required a password for the first IAP made on a device. Entitled "Confirm In-App Purchase" (Figure 9), the window includes additional language relating to IAPs. The call to action on this prompt is the same as on previous prompts: "To complete your purchase, enter your Amazon password[,]"
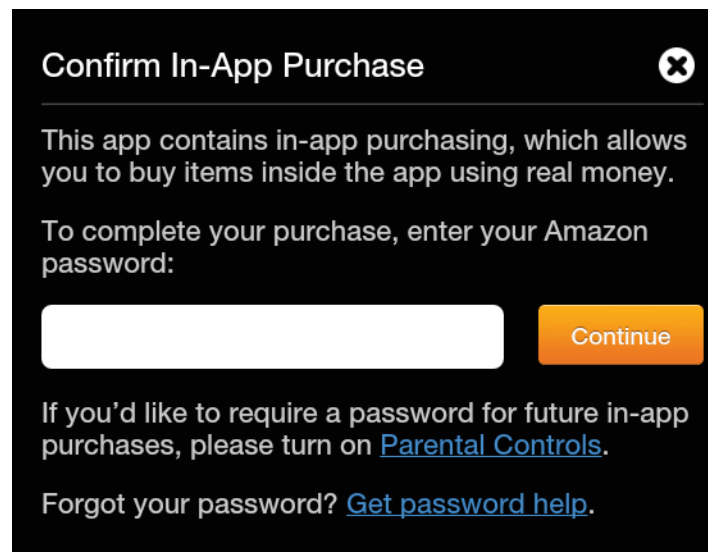

Figure 9: The 2013 "Confirm In-App Purchase" password window

followed by a password entry box and an orange "Continue" button. Above the call to action, there is language about in-app purchasing, similar to the first sentence of the IAP Note. Below the call to action, there is a statement about parental controls ("If you'd like to require a password for future in-app purchases, please turn on Parental Controls.") and a link for users to get "password help" if they forget their password.

For at least three reasons, for many users this password prompt would not effectively

disclose that entering a password would allow children to incur certain in-app charges without password reentry or that they would have to change their device settings to prevent children from incurring additional in-app charges without password reentry. First, the call to action (entering a password) dominates the focus of this prompt and suggests the other text is less important. Many users would be unlikely to read the other text on the prompt, especially the text below the call to action. Placing text below the call to action—that is, low in the visual hierarchy—suggests it is less important than the other information on the prompt. Indeed, the title of the prompt ("Confirm In-App Purchase") suggests the function of this prompt is limited to this transaction and only this transaction. As a result, users may not notice or read the other text on the prompt, including the "future in-app purchases" language below the call to action. In fact, even users who see that text may assume it is unimportant and choose not to read it.

Second, even users who do read the text on the prompt may be confused about the function of the prompt if they are unfamiliar with the concept of in-app purchases. These users may not understand that they are approving an actual charge by entering their password, let alone allowing children to incur subsequent in-app charges without password reentry. While the text above the prompt mentions "real money", it does so subtly, without mentioning the dollar amount of the particular charge or using a dollar signs or other signals to emphasize that there is a financial transaction. Given that free apps in the Appstore are also "purchased," the use of the word purchase without referring to an actual cost is ambiguous within the Appstore ecosystem. Next, the only direct action one can take in this window other than to cancel is to enter one's password. Amazon users are asked to enter their passwords often across many contexts on both the Amazon website and on the Fire tablet. If a parent does not see or is unable to discern from this prompt that an IAP is going to result in real money being charged to their credit or ATM

card, they may assume the password prompt is a routine security check rather than a financial authorization.

Third, the text on the prompt is not clear, such that even users familiar with in-app purchases are unlikely to understand that after entering their password a child would be able to incur additional in-app charges without password reentry. As noted above, the title of the prompt and call to action suggest the prompt relates exclusively to one particular transaction. While some users familiar with in-app purchases may read the text on the prompt and understand that parental controls are available to prevent future in-app purchases without password entry, some may not. This is because the text referring to "future in-app purchases" is vague. The first three words of the sentence referring to parental controls read, "If you'd like…" This softens the sentence, suggesting the information that follows is not urgent. Users who see the text and read these words may not continue. Others may read the full sentence but because the information is characterized as optional, fail to understand that they must change their device settings to prevent children from incurring additional in-app charges without password entry.

Moreover, since IAPs cannot be restricted from this password prompt, the burden still rests on the user to interrupt their task and take additional steps outside the immediate purchase flow to restrict IAPs within the Parental Controls settings. This sort of task interruption is a powerful disincentive,[45] requiring users to leave the purchase flow and the app. This makes it likely that a substantial proportion of users who may have wished to restrict IAPs, had they understood that they had to change the device settings to ensure a password for future in-app purchases, still did not do so. A busy parent who has already been interrupted to be asked for their password may not navigate to the Parental Controls menu to set purchase restrictions at that

---

[45] Johnson 2010, pp. 99-100.

instant. In addition, if one does elect to click the Parent Controls link and set them at that time, afterwards they are left in the Settings area of the tablet and must find their own way back to the active app.

The most recent password prompt, introduced in June 2014, resolves the task interruption problem by allowing the user to implement the password restriction directly in the flow without having to abandon their present task. It gives the user multiple relevant options, clearly states what is being purchased and its cost, describes the action that will occur after entering one's
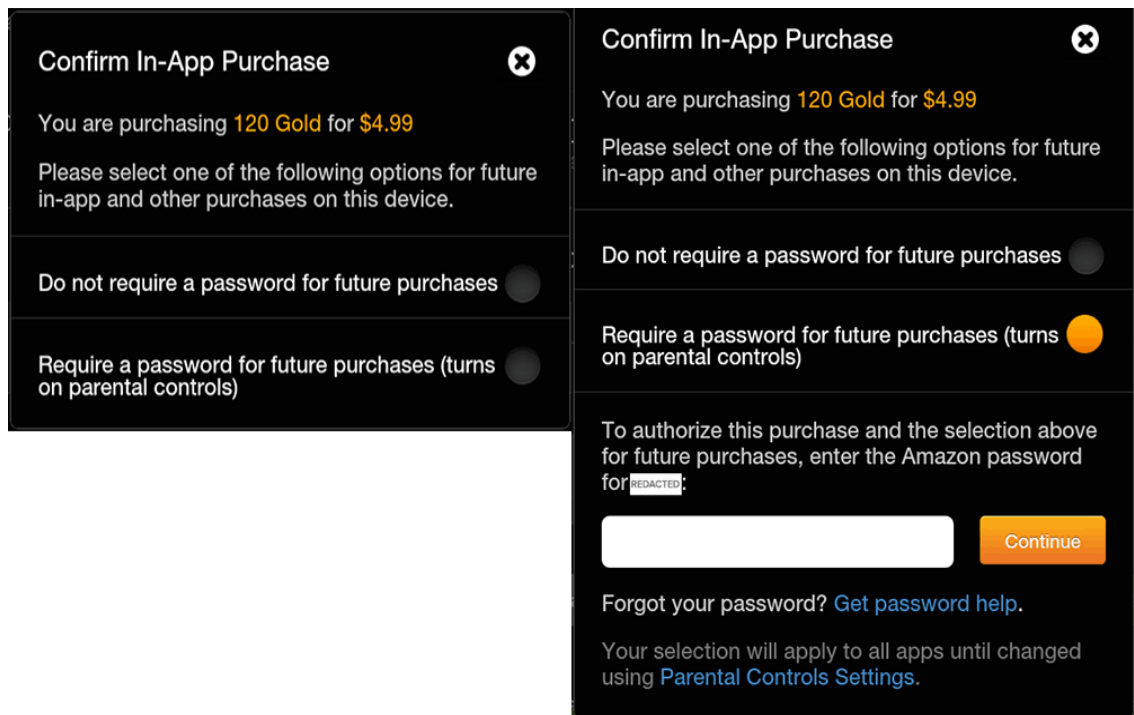

Figure 10: 2014 iteration of the password prompt in use today

password, and then implements the action directly rather than forcing the user to leave the current flow. The window also provides an additional explanation of the system status after choosing a password restriction: "Your selection will apply to all apps until changed using Parental Controls."

3. Purchase Confirmation Screen

After an in-app purchase, Amazon generally has displayed a "Thank you!" confirmation screen. The primary call to action on this screen is the "Close" button in the top right. The screen includes text about the in-app item the user just acquired and, at the bottom, says: "Parental Controls: Off (<u>Change</u>)" in the default off state (Figure 11). This text is low in the visual hierarchy, suggesting it is less important than the other information on the screen. The word "<u>Change</u>" is a link that, when clicked, takes the user to the Parental Controls settings area on the Fire tablet. When Parental Controls are enabled, the messaging changes to "Parental Controls: On (<u>Change</u>)."
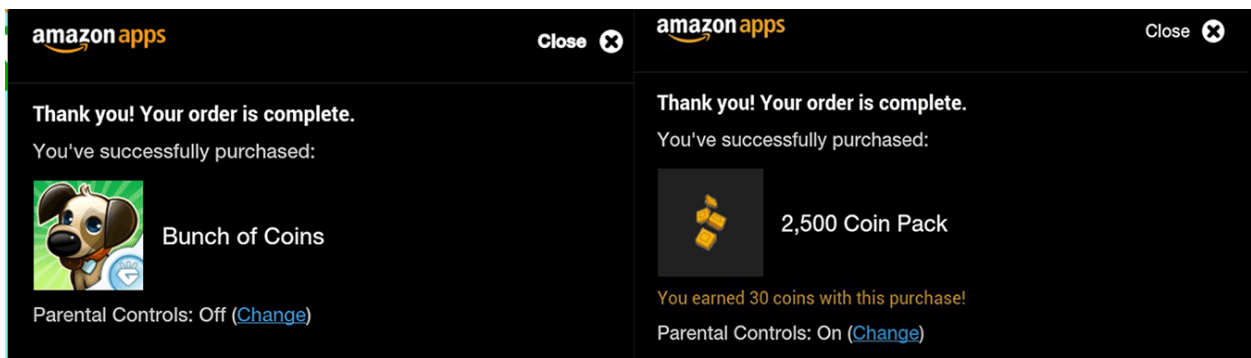
Figure 11: Purchase confirmation window with Parental Controls Off (Left) and On (Right)

As discussed above, Amazon often did not require password entry during the IAP flow. If the child was the primary user in the IAP flow, it is also unlikely that a parent would see this screen at all. When Amazon required password entry, some parents may not have seen this screen after entering their password and handing the device back to a child. Other parents may have seen the screen, but may not have read the text given that the primary call to action is the close button in the top right. Some parents may have seen the reference to "Parental Controls" at the bottom of the popup, but this messaging is vague and does not clearly explain to the user that children can incur other in-app charges without password entry or that the parent must change

device settings to prevent children from incurring other in-app charges without password entry. As discussed, the term parental controls historically signified content rather than purchase restrictions, and its generic use on this page does not provide a clear disclosure that one can restrict IAPs. Moreover, given that this screen appears immediately after Amazon required password entry for an IAP, many users would not understand that Amazon often does *not* require password entry for IAPs. As a result, many users who viewed this screen likely would not have understood that children could incur other in-app charges without password entry or that they had to change their device settings to prevent children from incurring other in-app charges without password entry.

4. Summary

With regards to Question 4, I find that Amazon did not effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain in-app charges without password reentry. In fact, the introduction of a "purchase window" in February 2013 that was opened after the customer entered in their password during a second IAP may have further confused consumers by inconsistently invoking IAP password prompt. Regarding Question 5, I find that Amazon did not effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring certain in-app charges without password reentry.

C. *Analysis of the Refund Process*

With respect to the refunds process, the FTC asked me to examine two questions:

- Did Amazon effectively convey to consumers who incurred unauthorized in-app charges that refunds were available for those charges from Amazon?

- Did Amazon effectively convey to consumers who incurred unauthorized in-app charges how to request a refund for those charges from Amazon?

In order to answer these questions, I reviewed the user flow first from the primary point of origin where an Amazon customer may be informed of an IAP (the IAP confirmation email), and as a second option, from the customer's Amazon.com account orders page. This process consisted of examining the information Amazon provides at each step and the pathways (links) made available for customers to navigate. These two starting points are two likely places from which a customer might begin the process of investigating an IAP and how to obtain a refund (as explained below). It is possible that other information on this topic might exist both on and off the Amazon site (e.g., user help forums) but that is beyond the scope of this analysis.
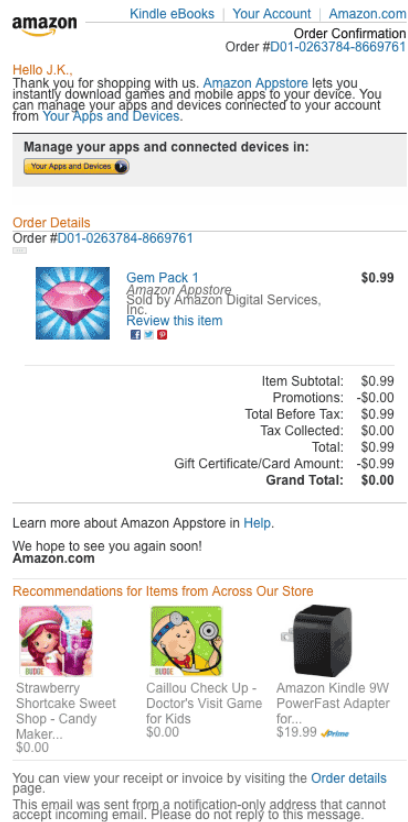
Figure 12: Sample In App Purchase Confirmation Email

1. IAP Confirmation Purchase Email

Amazon sends the customers it bills for an IAP an email to their email address of record. This same email address is also used to sign-in to their Amazon accounts. Because the order confirmation email is the primary order information source, this is the first point at which customers who did not make the IAP would be notified of the transaction. Each individual order generates an order number and a corresponding email; for example, for testing purposes I ordered three Gem Packs from the *Inside Out Thought Bubbles* game, and for each item I received an email with a separate order number and a single charge.

However, the email itself provides little information about the IAP and no information about whether an IAP can be refunded, as Figure 12 illustrates. Further, the email only identifies

the <u>item</u> purchased, not which <u>app</u> the item is associated with. For the customer who did not authorize an IAP, this lack of identification to an app can create additional confusion regarding why this email appeared in their inbox.
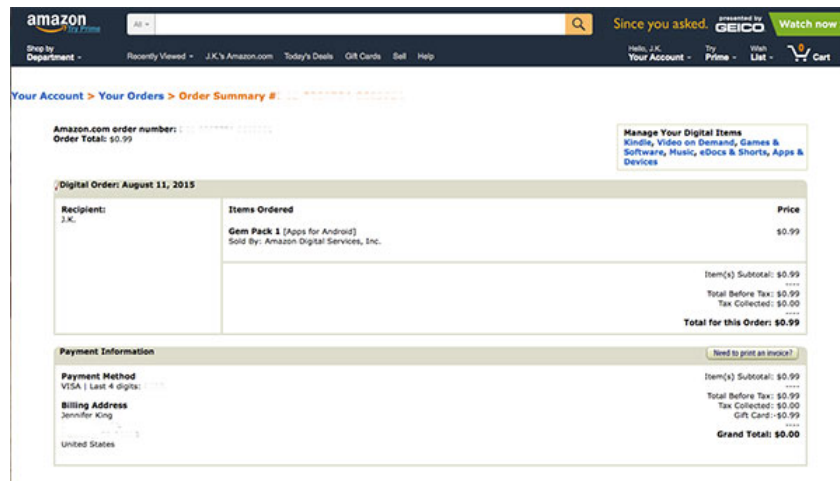

Figure 13: IAP Order information page on Amazon.com linked from IAP confirmation

The webpages linked to in this email, including the header links (<u>Kindle eBooks</u> | <u>Your Account</u> | <u>Amazon.com</u>), also do not provide any information about whether refunds for IAPs are available or how to obtain one. The Amazon Appstore link leads to the Appstore home page. In
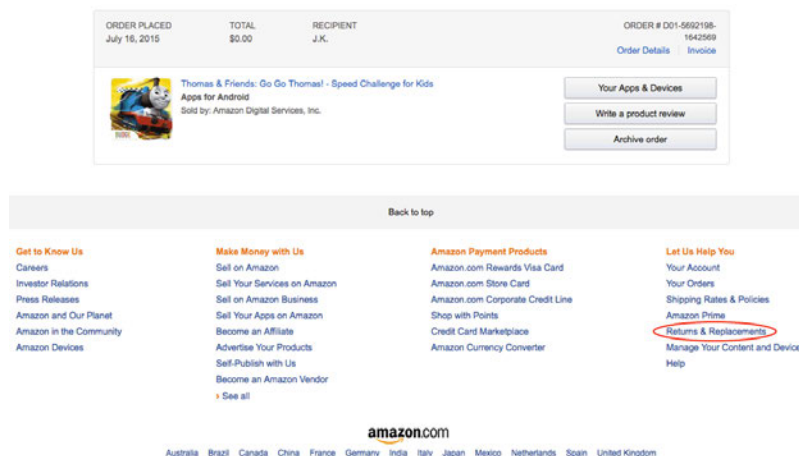

Figure 14: A partial view of the Amazon.com page footer with "Returns & Replacements" circled in red

all of my confirmation emails, clicking on the linked name of the IAP item generated an error

page.[46] Clicking on either the order number either under Order Confirmation or under the Order details links in the confirmation email leads to a screen (Figure 13) that provides information similar to that in the email about the order, but no information about whether refunds for IAPs were available or how to obtain one. The only returns-related information on this page is the standard "Let Us Help You – Returns & Replacements" link at the bottom of the page (Figure 14), but this link leads to Amazon's primary returns center for physical items, which provides the path for customers to return physical items they have purchased. There is no option to "return" digital purchases through Amazon's return center for physical products.

There is a Help link in the confirmation ("Learn more about Amazon Appstore in Help"), which leads to an Amazon Appstore Customer Service page (Figure 15). However, the topics listed on this page do not address whether refunds for IAPs are available or how to obtain one. The list does contain a link to the Amazon Appstore for Android Terms of Use, which states that:
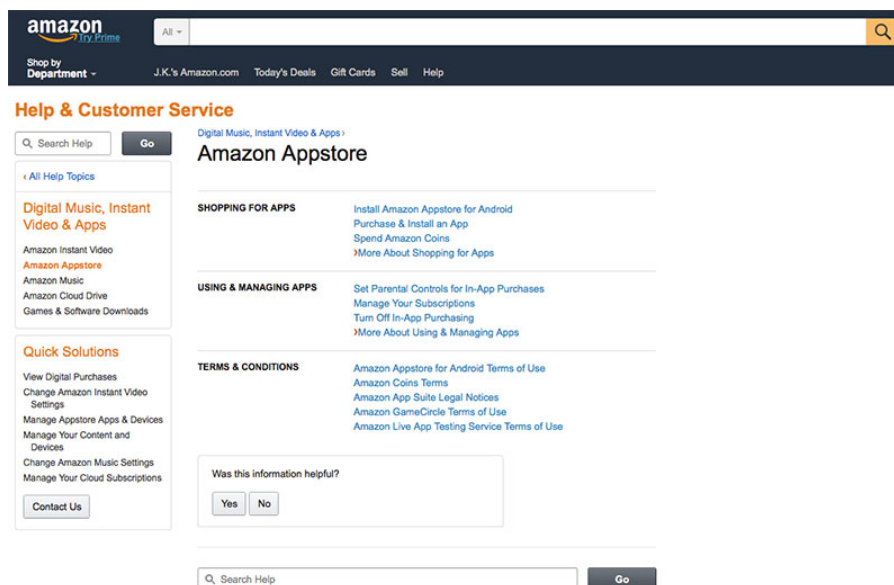

Figure 15: Appstore Help & Customer Service Page, as linked from the confirmation email

---

[46] The error page was a generic Amazon.com error page with the text: "Looking for something? We're sorry. The Web address you entered is not a functioning page on our site."

"All purchases of Apps and Amazon-Sold In-App Purchases are final. We do not accept returns of Apps or Amazon-Sold In-App Products." There is a "Contact Us" button at the bottom of the left-hand sidebar which leads to the Appstore Support center, which I will discuss in detail below in Section 2.C.
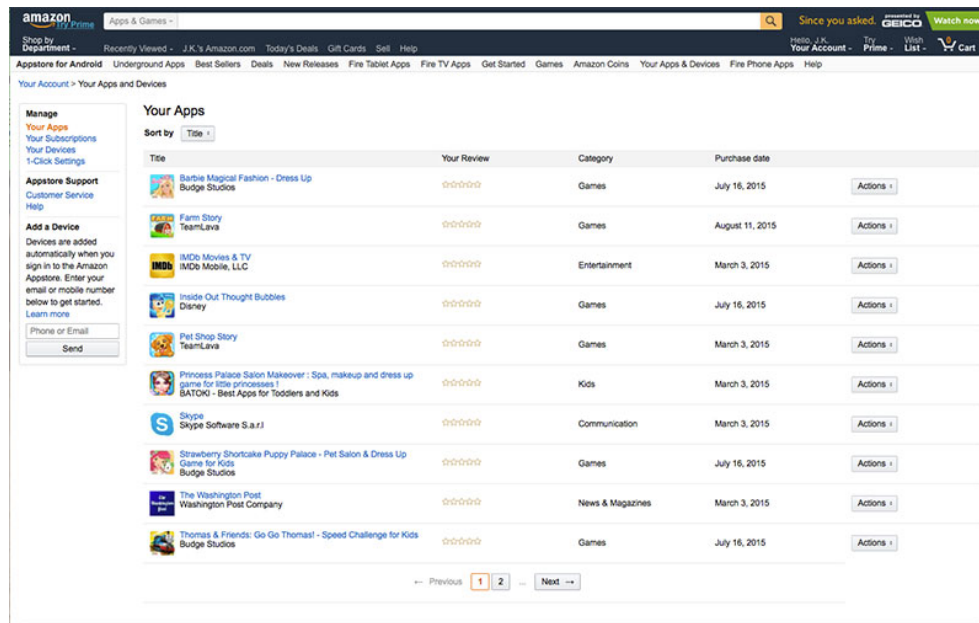

Figure 16: Your Apps dashboard view as linked from confirmation email

The IAP confirmation email also notes that you can "manage your apps and devices connected to your account from Your Apps and Devices." Clicking on this link leads to a page entitled Your Apps (Figure 16). This page presents a dashboard view of all of the apps associated with a customer's account, but confusingly at this level it does not show any in-app purchases associated with these apps. IAP-related information is obtained by clicking on the "Actions" button on the far right side of the screen, and selecting "Your In-App Items" from the drop-down menu. However, selecting that option only shows IAPs that were purchased for multiple devices; otherwise the customer is given the message: "You do not own any multi-device in-app items for this app."

Again, the Your Apps page contains no direct information about whether refunds for

IAPs were available or how to obtain one. It does contain links in the left sidebar to <u>Appstore</u> <u>Support</u> (which I will discuss below) and <u>Help</u>. However, clicking Help leads to a different help page than in Figure 15; this help page, entitled "Using & Managing Apps (Figure 17)," also contains no information regarding whether refunds for IAPs were available or how to obtain one.
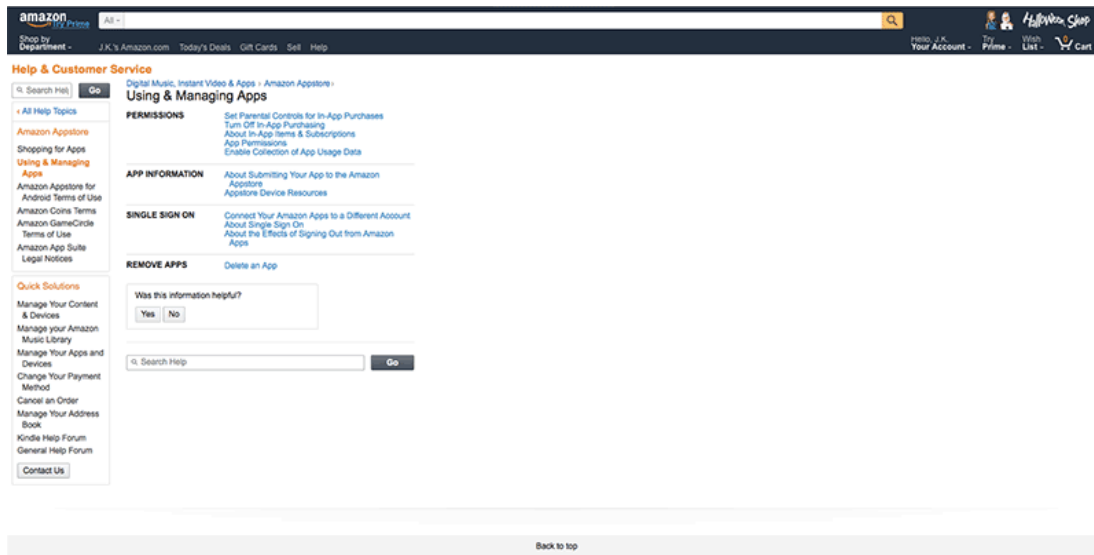

Figure 17: Help page linked from the "Your Apps" page

A user may proactively attempt to navigate the Appstore Help pages[47] (which are only directly available from the <u>Your Apps</u> page sidebar), but whether the user would find a relevant help page is uncertain given that there are no pages with the term "returns" or "refunds" anywhere in the Appstore Help topic list. One can select the <u>Cancel an Order</u> link in the sidebar, which returns one to the <u>Your Orders</u> page (referenced in Figures 23 and 24 below) which I will discuss in more detail in the next section, but this page also does not include information regarding IAP refunds or returns. There are several pages that include the terms "In-App Purchases" in their titles, but only one ("<u>Set Parental Controls for In-App Purchases</u>"), as I will address below in Figure 21, contains the explicit information that in-app purchases are not

---

[47] Available at: https://www.amazon.com/gp/help/customer/display html?nodeId=201357430.

returnable.

In sum, if an Amazon customer uses the IAP confirmation email as his or her starting point to attempt to find information regarding whether refunds are available for IAPs, the customer will not find any information to assist in that quest. Instead, the customer will encounter a notable lack of information regarding returns for digital purchases on any of the pages related to the apps they have downloaded to their device(s).

2. Appstore Customer Service Contact Form

Figure 18: The Appstore Contact Us form - selection of the primary issue

While Amazon does not provide information indicating that IAPs are refundable or how to obtain a refund in the links from the confirmation email, as explained above, some customers may have opted to directly contact Amazon Customer Service in order to question their charge(s). To access the Appstore Customer Service contact form from the confirmation email, one must either click Help, and then the Contact Us button on the Amazon Appstore Help page,

or <u>Your Apps and Devices,</u> and then the <u>Customer Service</u> link located in the left sidebar. Alternatively, if one clicks on the primary <u>Help</u> page for all of Amazon.com, scrolls down the page to "<u>Browse More Topics</u>," and finds and selects the "<u>Need More Help?</u>" link, there is a <u>Contact Us</u> link that appears that will also lead to the <u>Contact Us</u> form in Figure 18 (but the form

Figure 19: Appstore Contact Us form - selection of the secondary issue

defaults to non-digital orders). At the bottom of the page, there is a <u>Returns and Replacements</u> link. A user who clicks on the <u>Returns and Replacements</u> link at the bottom of all Amazon pages (Figure 14), however, is sent to the returns page for physical products, and there is no obvious means to contact Appstore customer service from the <u>Returns Center</u> home page.[48] Finding the <u>Contact Us</u> page is an extremely complex task on Amazon.com, as the site attempts to route customers to self-service support options first (Help pages, customer forums) by locating the <u>Contact Us</u> link several levels down in the Help hierarchy. Further, the clear lack of a path for digital (non-physical) products in the primary Returns flow is also confusing for customers seeking help with an IAP.

If a customer finds the Appstore "Contact Us" page (Figure 18), the customer is presented with four options tabs, first defaulting to "An order I placed." The others are "Fire and Kindle," "Digital Services," and "Prime or Something else." From three options tabs (excluding

---

[48] The Returns Center is located at: https://www.amazon.com/gp/css/returns/homepage.html.

Prime), one is able to navigate the drop-down menus to select "Appstore Games and Apps" and then "Accidental orders and returns," which appears to be the best match from each menu to apply to an issue with an unauthorized IAP (see Figure 20 for detail). Three modes of contact (Email, Phone, or Chat) are offered, but one is typically highlighted in blue and recommended as a suggested mode (during my testing, "Phone" was the most commonly suggested method).

Figure 20: Contact form with "Did You Know" blurb and Phone selection recommended

After selecting sequentially from the two dropdown menus, the page updates with a blurb (Figure 20) consisting of the following message: "**Did you Know?** To help avoid accidental in-app purchases, you can set up Parental Controls by following these steps." Three steps are described for activating Parental Controls, followed by a link: "Go to Set Parental Controls for In-App Purchases for more details. While the form on this page provides a path for contacting Amazon customer care about accidental IAPs, it does not contain any information regarding whether refunds for IAPs were available or how to obtain one.

If one chooses to click through to the Parental Controls link provided, the resulting page (Figure 21, entitled "Set Parental Controls for In-App Purchases" contains the bullet point: "Appstore purchases are not returnable. For more information, go to Amazon Appstore for Android Terms of Use."
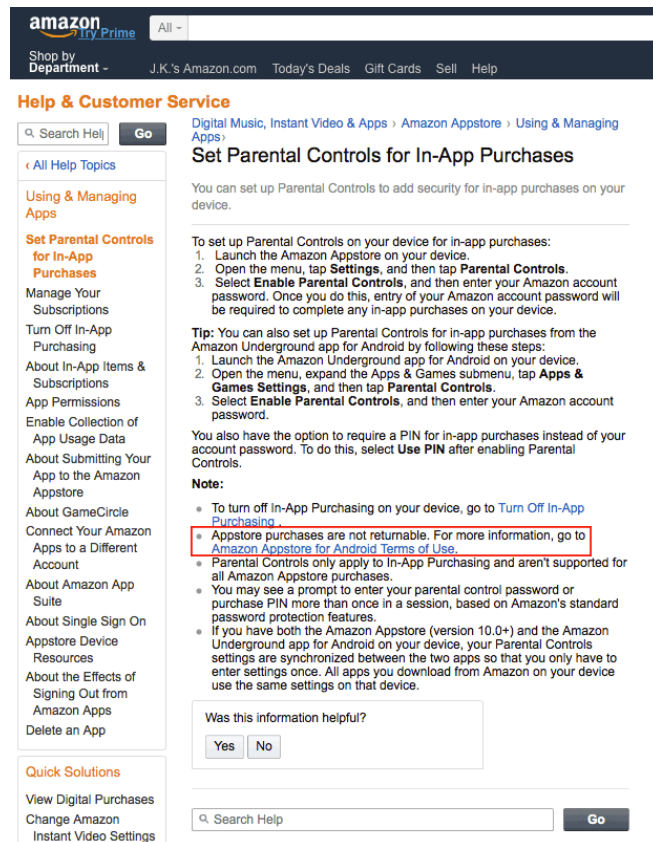
Figure 21: Parental Controls for In-App Purchases Help Page w/text highlight

3. Summary of Confirmation Email Flow Issues

In sum, assuming an Amazon customer uses the links within their IAP confirmation email to navigate to the site to seek either more information regarding an unauthorized IAP or a path for contacting customer service, there is no information provided throughout this flow that informs the customer that refunds for IAPs were available or how to obtain one. Customers are presented with a complex set of options that do not clearly signpost either how to contact customer service or provide a simple way for obtaining information that directly addresses

whether IAPs are refundable. Finally, the only information that is provided on that point explicitly informs customers that Appstore purchases are in fact <u>not</u> returnable.

4. Refunds Originating from the Amazon.com Website

Amazon customers may decide to go directly to the Amazon.com website and navigate to their <u>Your Orders</u> page in order to investigate an IAP instead of utilizing the links suggested in the confirmation email. This is also a likely path given that experienced Amazon customers would typically be aware that their My Account page provides access to their purchase history. Thus, in this section I will investigate whether the user flow in this path provides information regarding that refunds for IAPs are available or how to obtain one.
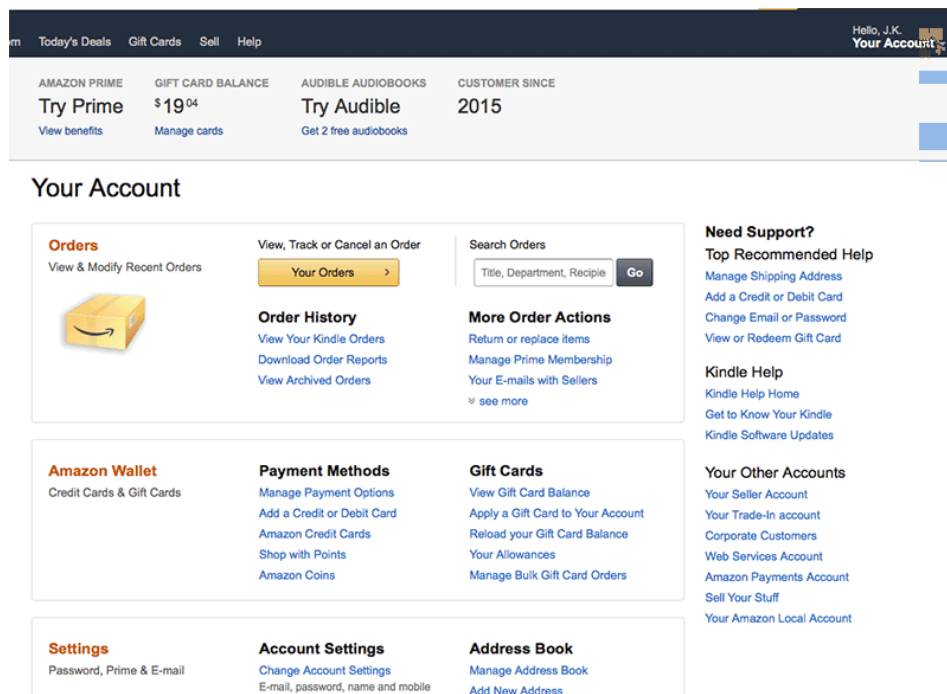
Figure 22: The primary <u>Your Account</u> page on Amazon.com

There are multiple paths available to access one's order page: clicking directly on the <u>Your Account</u> link in the top navigation and then selecting <u>Your Orders</u>, as well as clicking and holding on the same link in the top navigation and selecting to <u>Your Orders</u> from the resulting drop-down menu. If a customer goes to his or her main account page and clicks on "Your

Orders," the default view that appears is a list of all of the physical products they have ordered from Amazon.com. In order to find IAP orders, a customer must notice that they need to select "Digital Orders" from the four options at the top of the page in order to find any IAPs ("Orders | Open Orders | Digital Orders | Cancelled Orders"). The currently selected option has an orange highlight beneath it on the line below (Figure 23).[49] See Figure 24 for an image with the Digital Orders portion circled in red. This choice architecture presumes a customer knows and understands that an in-app purchase is a "digital" order. For customers who don't understand this distinction, this page can be extremely confusing.

Figure 23: The default order page selection on My Orders. The active page is indicated with the orange highlight.

If a customer selects Digital Orders (Figure 24), a page opens with all of one's digital product orders (paid apps, free apps, IAPs, and other digital products purchased through the Appstore) made from the account. While this page shows any IAPs made from the account, it does not provide any information indicating that refunds for IAPs are available or how to obtain one. Clicking on Order Details provides a view identical to that shown in Figure 13. Selecting the Your Apps And Devices button returns you to the Your Apps page as shown in Figure 15. In

---

[49] From My Orders, you can also select under Order History "View Your Kindle Orders," but this opens to a page called "Manage My Content and Devices" that defaults to "Your Content: Books." If you click on "Books" you invoke a drop-down menu that contains "Apps." Selecting this option takes you to the Your Apps page discussed earlier (see Figure 15).

short, there are no direct options on this page to reach the Appstore Contact Us page in order to send an inquiry about a refund. The only returns-related link is at the bottom of the page: <u>Returns</u>
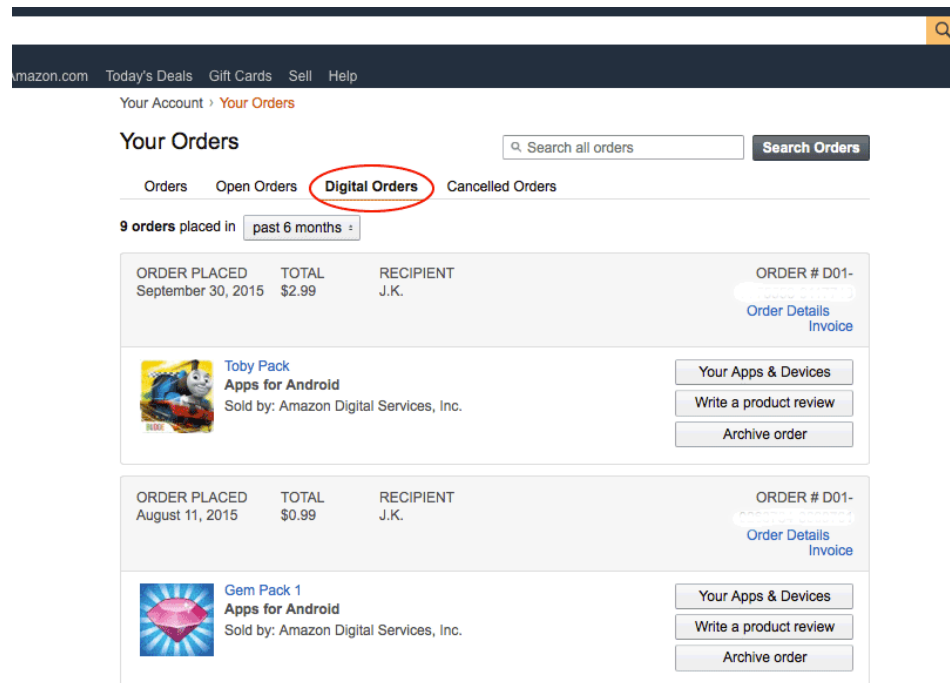
Figure 24: Your Orders page with Digital Orders indicator highlighted

<u>and Replacements,</u> which as noted earlier places the customer into the returns flow for physical purchases.

While Amazon's physical products returns process includes a "<u>Return or Replace Items</u>" button featured prominently in the choices next to each order summary, the <u>Digital Orders</u> page lacks a similar feature. As noted above, on the <u>Digital Orders</u> page there is no information provided to customers that refunds for IAPs are available or how to obtain one. Further, from this point on the website, there is no clear path to reach the Appstore "Contact Us" page. Non-intuitively, the only link from this page that will eventually lead a user to the <u>Your Apps</u> page, where the user has the option of clicking on the Appstore Customer Service link, is a link at the bottom of the page entitled "<u>Manage Your Content and Devices</u>" (Figure 25). If a user is truly

confused and clicks the <u>Help</u> link at the bottom of the <u>Digital Orders</u> page, the user arrives at a

page with the options of <u>Your Orders</u> and <u>Devices and Content</u>; <u>Your Orders</u> returns to the

default physical orders page, and <u>Device and Content</u> returns to the "<u>Manage Your Content and</u>
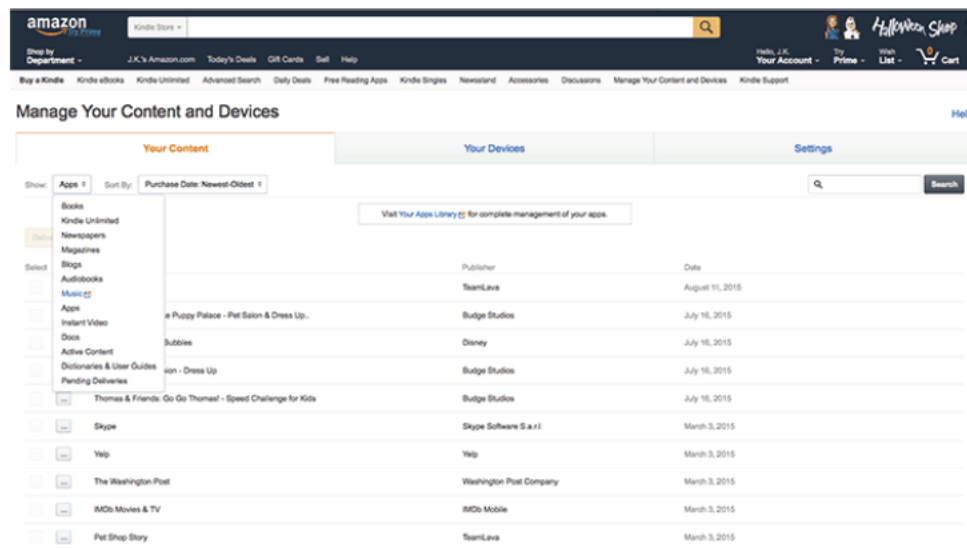
Figure 25: The "Manage Your Content and Devices" page, which by default is set to Books.

<u>Devices</u>" page. This "Manage Your Content and Devices" page (Figure 25) defaults to "Books"

when loaded, and one must know to select Apps from the drop-down menu (shown) in order to

view a list of installed apps. However, this page also neither shows IAPs or indicates that refunds

for IAPs were available or how to obtain one.

5. Summary

In response to the FTC's two questions on this matter, my conclusions are:

- Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges that refunds were available for those charges from Amazon.

- Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges how to request a refund for those charges from Amazon.

Amazon does not provide explicit information indicating that refunds for IAPs are available or

how to obtain them to users following either of the two primary flows for obtaining information

about purchases made to one's account. Attempting to locate any information that refunds for

IAPs were available or how to obtain one is a complex, time-consuming task for a consumer following either of those two flows given the difficulty of navigating through them to the point of reaching a way to contact customer service. This process is made even more difficult by the fact that there is no direct means to navigate to the Appstore Help or Digital Orders pages from the primary Amazon Returns Center page.

D. Analysis of Customer Complaints

To supplement my heuristic analysis, I reviewed customer complaints provided by Amazon to the FTC. The use of customer complaints or comments as a source of information about a user's experience with a product or service can provide an organic and user-centric perspective of a user's primary concerns or challenges. In this way, it is an excellent complement to a heuristic analysis by providing "raw" feedback directly from users that may both highlight issues identified by the heuristic analysis as well as raise other user concerns.

Amazon provided the FTC with 152,484 text files consisting of records of individual consumer complaints corresponding to certain Amazon complaint codes. The dates of the files ranged from 11/22/11 to 7/2/14. The files were structured (using consistent data fields) but the structure itself was not consistent across all of the files. In particular, at some point in 2014 the file structure shifted to include a number of additional fields and included XML tags. The file export also introduced a number of Unicode encoding errors into the text (resulting in text with extraneous characters included)[50] as well as truncated or blank text in one of the primary customer communication fields (COMMTEXT) in most of the files marked as email based exchanges. These issues, in addition to the nature of the text itself[51], limited my ability to perform extensive automated analysis on these files in the time allotted. Thus, my primary analysis consists of a qualitative review and coding of a subset of these files.

In order to determine the subset of files to include in my analysis, I spent some time manually reviewing a set of customer service files that had been previously provided by Amazon

---

[50] An example of this type of error is as follows: "my kids bought so!ÎfhIhT!i5ft!5cident for 19.99." This likely reads in the original text as "my kids bought something by accident for 19.99." Unfortunately, most of the errors I observed were not consistent throughout the text.

[51] Because these exchanges are typically unedited, they have many misspellings and punctuation errors. These types of errors introduce a high level of 'noise' to the files and make it especially challenging to run automated text processes on them without a time-intensive step of identifying common errors and excluding them from the analysis.

to the FTC and summarized in an Excel spreadsheet (entitled Amz_Csc_0000001.xlsx), to familiarize myself with their structure, content, and coding scheme.[52] I determined that the following fields were the most relevant by which to sort and select files:

- CommType (consisting of phone, chat, and email)
- Code "Accidental Order – Child" (a code tagged by Amazon customer service agents to indicate customer cases resulting from what Amazon calls "the accidental order" of an IAP by a child. This code appeared to be a leaf-level code that appeared on multiple branches of the coding schema.)
- COMMTEXT (the primary text record of the interaction between the customer service agent and the customer)

My manual analysis of these files led to me to decide to focus on the union of files containing the term "Accidental Order – Child" and those with a CommType of email or chat. Files marked as phone did not contain any COMMTEXT from the customer and instead only included summarizing notes from the customer service agent. I determined the chat/email subset would most likely yield the most informative results because it consisted of complaints directly from customers that specifically articulated their issues with IAPs in their own words.

---

[52] The set of files contained in the spreadsheet appeared to be duplicated in the full set of 152,484 text files.

Table 1: Overview of all complaints sorted by CommType

Complaint Type	Total	Percentage
Phone	111,130	73%
Email	24,163	16%
Chat	17,189	11%
Missing Queue Classifier	2	>1%
Total	152,484	100%

Table 2: Complaints containing term "Accidental Order – Child"

Includes Term	Excludes Term	Total
117,827	34,657	152,484
77%	23%	100%

After searching the files using the Unix command 'grep'[53] for files classified as either chat or email and containing the term "Accidental Order – Child," the result was 28,499 files, or 19% of the total set of complaints. The date range of this subset of complaints was 11/22/11-7/2/14.

Table 3: Union of "Accidental Order- Child" and CommType email and chat

Chat	Email	Total
13,027	15,472	28,499 (19% of total)

---

[53] The syntax I used was: grep -ril "Accidental Order - Child" ../../complaintsData > results.txt," which output the results from the file set into a text file entitled "results.txt."

At over twenty-eight thousand files, this set was still too large for manual analysis, and as I noted earlier, there are issues with these files that do not easily allow for automated large scale text analysis. Thus, I randomly sampled 400 files from this set.[54] I selected this total based on a sampling methodology that would provide a representative sample at a 95% confidence interval with a margin of error of +/-5%.

1. *Methods*

I manually reviewed each of the 400 files over a period of 1.5 weeks. For each file, I recorded the following:

- The file name and CommID (unique identifier generated by Amazon);
- Date of complaint;
- CommType noted as Chat or Email;
- Informative: I marked a file as Informative to this analysis when the customer *explicitly noted* that the basis of the complaint was an unintentional order for an in-app purchase by a child;[55]
- The advice given by the customer care agent (whether to enable Parental Controls or restrict IAPs). On many occasions an agent suggested both options, and in those instances I coded for the first suggestion given);
- Whether the customer care agent told the customer the purchase was non-returnable;
- Key text of the customer's complaint (occasionally condensed for brevity, such as during extended chat sessions which contained extraneous detail). I did not include the text if I did not classify the complaint as Informative as described above, the COMMTEXT was

---

[54] In order to make a truly random selection, I created a script written in Python that used a method (random.seed) that takes a preselected numeric seed in order to generate a random sample. Using the same seed, the process can be rerun to reproduce the same selection for the sake of reproducibility.

[55] This method provides a conservative estimate as many complaints asked for refunds without explicitly noting that the charge was made by a child, even though the customer service agent marked the case as "Accidental Order – Child." In short, I did not want to make any assumptions about a complaint and only considered those where the customer's explanation was clear that a child made the IAP.

missing, or in some cases where the text contained minimal information. If the complaint included a reoccurring theme, I included a notation of the theme.

Table 4: Summary of 400 Randomly Selected Complaints

Date Range	Labeled Chat	Labeled Email	Informative	COMMTEXT Missing
5/4/12-2/19/14	183 (46%)	217 (54%)	219 (84 chat, 135 email), 55%	38 (10%)

From this sample, I closely reviewed the customer complaint text in the 219 complaints (84 chat, 135 email) in which the customer *explicitly noted* that the basis of the complaint was an unintentional order for an in-app purchase by a child. As noted above, I classified these complaints as "Informative" for this analysis. The remaining files included complaints where the text noted that an accidental order had been made but did not explicitly mention that it was made by a child; files where the text was too brief, truncated, or garbled to interpret; files indicating that consumers complained about other issues such as technical issues; files where the COMMTEXT was missing but other data was intact; and blank files. [56]

2. Complaint Themes

My primary goal in conducting a qualitative analysis of these complaints was to observe whether there were any themes that emerged beyond the complaint that there was an IAP incurred by a child. Indeed, many of the complaints were straightforward, with customers simply stating that a child had made an unauthorized IAP and inquiring about the possibility of a refund. However, many of the complaints evinced a number of themes which point to key usability problems with the IAP disclosure and purchase process.

---

[56] Of the 400 files, 38 (10 percent) were missing the COMMTEXT completely while still containing other data; a smaller proportion were missing all data and contained empty fields other than the CommID and date.

I created thematic categories after viewing multiple complaints on a similar topic both while I reviewed the complaints and retrospectively after having reviewed all 400 files. Generally, after two to three instances of a topic occurred, I created a theme to help track them across complaints.

A. Confusion About IAPs

The theme that I observed mostly commonly in my review of customer complaints was a clear lack of understanding of what an in-app purchase is. I reviewed many complaints from users who apparently were made aware of an IAP via a confirmation email sent by Amazon, and then contacted customer service because they had no idea what the purchase was for. For example:

> *Customer: Good Morning, There is a charge on my account from 1/12/13 $3.99 for 100 air strikes. I did not download this app and I am not sure why it is showing up on my account. Can you please investigate and remove the charge . . . How can you purchase an app while playing a game. This is my son's Kindle.*
> *Agent: It is not an app, when you play a game within an app, you will have stages*
> *to progress in the game. it is like a stage which you or your son purchased accidentally. [24458115525]*

> *Customer: I'm seeing a charge for a Kindle app that I didn't purchase, and if it was inadvertently purchased by my child, I don't see where it was downloaded to my Kindle because its not there.[25400851365]*

Relatedly, some customers assumed that a free app would not have a component that allowed for paid purchases. For example:

> *Customer: Hi, my 5 year old was playing a free game on my kindle and apparently unlocked sections of the game that you have to pay for. I just opened my email to see all of her purchases. Ugh! Is there any way you can take them off[23085579955]*

> *Customer: I put two free games on my kindle last night and today noticed in my bank account that I was charged to my account for 4.99 and other was 1.99 . . . ooh that woulda been my 5 year old grandson[24802451835]*

Customer: My daughter (who is 5) mistakenly purchased an app (on 3/4/13) while playing a FREE game I downloaded for her on Sunday, 3/3/13.? How do I get rid of this app, as well the $14.99 charge. Also, how do I prevent this from happening again[24660218405]

Customer: My 5 year old child unknowingly purchased today an upgraded vehicle via kindle fire in angry birds go for 9.99. This is very deceptive as the game implies you buy vehicles with coins and when you go to redeem them it charged credit card. I've removed 1 click settings but I would like the upgrade removed and a full refund. I'll be more cautious, as now have a better understanding of your marketing and sales strategy to children and unapproving parents.[26388630795]

I also observed complaints from grandparents and others who did not have young children in the home, yet gave a child access to their Fire tablet. Based on my review, these customers not only typically did not understand what IAPs were, they also were often unaware of the existence of Parental Controls, a theme I also discuss below. For example:

Customer: I have several charges on my account that I have no idea what they are. Digital purchases that look like some sort of points . . . I have removed all my credit cards from my account. Is there another way to lock purchases. My grandkids are 6 and 7 years old and don't know that these items cost money.[22693462135]

Customer: My 3 yo grandson accidentally bought 200 coins for the Office Jerk app. I don't want this. Is there any way it can be cancelled? I'd greatly appreciate it. Figures it would happen the first time he played with my Kindle[24622448285]

Finally, a number of customers were unaware of IAPs and could only reconcile the number of order confirmations they received via email with a theory that their Amazon account had been hacked. In the cases I viewed, the customer service agent generally had to explain what IAPs were to these confused customers. For example:

Customer: I got an e-mail (receipt) about an app that was purchased for 5.99 that I did not purchase. I looked on my devices and also checked my kindle library on the pc and it does not show the app. I'm really hoping that my account wasn't hacked into or anything of the sorts . . . yes I'm sorry I did not know it was an in app purchase, no need to credit the account I know who was playing that game and am pretty sure that they did not know what they did. My son was the one. I'm will to pay for it I just didn't know who did it or what it was.[24190526095]

Customer: I have two charges on my account that we did not purchase. I am not sure if my daughter purchased these [Unicode error] they are not on her kindle. I am a little nervous my CC was taken but wanted to check to see if we did download this and didn't realize it?[24425670915]

Customer: I was wondering if I could get this taken off my daughter was on my kindle, but I don't think she would have bought this if she did it was by mistake since she is only 7 years old. I was concerned also if someone could have hacked into my account (if that is possible) if it can't be taken off that is no big deal, i just wanted to make sure that it wasn't hacked or something[23946475065]

B. No Awareness of Parental Controls

Some customers were unaware that either the Parental Controls to restrict IAPs or a settings option to disable IAP existed. Many specifically asked in their complaints whether such functionality existed. For example:

Customer: My kids made charges on my kindle fire without me knowing about it. I would like a refund but the purchases do not come up on the purchase list . . .I really wish there was a password to put in before a purchase is made. Please let me know if there is a way I can make them not able to do this.[25038239225]

Customer: I need to talk to a representative about a pending purchase that was made by my 8 year old today. i did not realize that she had the ability to charge my account. i need the purchase that she made for the currency bundle to be reversed, is there some kind of password to set up so that this can't happen again[25456135485]

Customer: I never placed the following order . . . It is for 275 diamonds, I don't know what it is about. The kindle is used by my 4 yr old daughter and it may have been an accidental purchase.. Please refund this as we never used it or intended to purchase it. Also please let me know how to disable purchases from my kindle without me entering a password. I don't have any settings button on my home screen. It was suggested online that you could control from there but my home screen doesn't have an icon for settings. Please advise?[24454260305]

C. Technical Issues and Misunderstandings with Parental Controls or 1-Click

Several customers complained that they had set up Parental Controls but they had malfunctioned in some manner, including cases in which resetting the device apparently reset the Parental Controls. For example:

Customer: There was an app that was purchased by my 2 year old son today and I need to remove it and get a refund. We always have parental controls on, but the Kindle recently was reset and the parental controls were not reactivated.[24564834215]

Customer: My child ordered this and I don't want it. My kindle was reset and it must have deleted my parental controls?[24675710265]

Customer: Hi, my credit card information is saved into my amazon account and my son keeps purchasing coins accidentally 3 different occasions. Is there anyway i can get a refund? My son has a kindle fire and I tried changing my password to prevent it but its still being charged[24755495585]

Customer: My kindle fire got wiped when the battery died, and I didn't realize that [Unicode error] gone. So, my 4 year old was able to purchase an in app purchase without needing the password.[24693815145]

Customer: Hi there? My 6 year old took the liberty of purchasing all of these apps w/o approval. I just checked my email and saw all of these apps.. We had it set up so you couldn't purchase any apps without a password and somehow that changed?[25976819405]

Other customers thought that disabling 1-Click purchasing would prevent digital purchases. Instead, disabling 1-Click prevents its use on the Amazon website for purchasing physical items, but it does not disable 1-click purchasing for IAPs. For example:

Customer: There were 4 orders placed on 3/23 by my 6 year old. I have turned off 1-click setting on all devices, and there is NO WAY he knows my password. How is this possible? I need the following 4 digital purchases removed from my devices & refunded.[24736551385]

Customer: My daughter made some digital purchases...but i had an incident before that's why i turned off my 1- click setting what happened?
Agent: So turning off 1-click doesnt prevent digital orders from being made. This just stops physical items from being ordered. Digital orders actually cannot be turned off by turning off 1-click. You'd need to enable Parental Controls on the Kindle Fire.
Customer: Doesn't 1 click prevent u from purchasing items because the first time it happened the lady helping me said that's what i needed to do
Agent Unfortunately it does not. Enabling Parental Controls are the only way to block digital content from being ordered. 1-click disabling is simply to stop physical items from being shipped to you. [23535574585]

3. *Summary*

In sum, I found evidence of several themes that directly support my usability analysis, though I must caution that even with this sample, it is possible that other themes exist that did not appear in my random selection.

First and most crucial was a clear lack of comprehension about what IAPs are and how they function. In most complaints with this theme, it appears the parent or tablet owner was made aware of the purchase via a confirmation email to the owner's account after the purchase was made. To add to the confusion, order emails list the item purchased (*e.g.* "Gem Pack One") with no association to the app in which the item is used, which led many recipients to look for an app installed with the name of the item. When they couldn't locate an app, they contacted Amazon from sheer confusion. Further, many parents and tablet owners believed that they had installed a free app and thus purchases associated with that app were not possible. Many of these complaints expressed complete confusion at the concept of IAPs, requiring Amazon customer service agents to provide a definition of IAPs in their correspondence. Indeed, a number of customers contacted Amazon because they thought their accounts had been hacked. This was often because as described above, they would receive a number of confirmation emails for IAPs but the name of the purchase didn't match an app on their tablet.

The second theme was a lack of awareness that controls to restrict IAPs existed on the device. Several complaints contained explicit requests from customers asking if some form of controls were available on the Fire as the customers were unaware that any existed. Additionally, there were a number of complaints from non-parents (primarily grandparents, but also other family members and acquaintances) whose tablet had been accessed by a child and who were

unaware of any controls. This theme often overlapped with the lack of knowledge that IAPs were possible, or the belief that IAPs were not possible with free apps.

The final theme related to complaints where parents or tablet owners were confused about settings to restrict purchases. In some cases, parents reported that they had set parental controls or purchase restrictions, but they believed that the settings had defaulted to off after a reset of the hardware. It appeared from most of these complaints that the users were unaware that a hardware reset would impact these settings. In other cases, customers claimed to have disabled 1-Click with the assumption that doing so would prevent any purchases by children on their tablets. Agents typically responded to these complaints with educational text explaining that disabling 1-Click on customer accounts only affected purchases of physical goods, but that 1-Click was required to be used on tablets for digital purchases.

In sum, after following a strict process for identifying the complaints that would be most informative to my analysis, I find that the consumer complaints I reviewed supported the conclusions reached by my usability inspection of the IAP disclosures in Section V.A., and call into question the effectiveness of Amazon's IAP disclosures and the IAP process (as reviewed in Section V.B.) in conveying to consumers (1) that children could incur in-app charges; (2) that children could incur in-app charges without parental involvement; and (3) that consumers would have to change their device settings to prevent children from incurring in-app charges without parental involvement. Further, as suggested by my conclusions in Section V.B, the analysis of the IAP process, the consumer complaints I reviewed suggest (4) no awareness of a password prompt window, and (5) confusion by many consumers about the existence of device settings to prevent in-app charges, as well as how to access, set them, and ensure they remained functional.
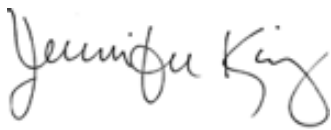
VI. Summary

For the reasons I have discussed in this report, my conclusions in response to the FTC's questions are:

- In response to Questions One, Two, and Three, the IAP Note <u>does not</u> effectively convey to consumers that children can incur in-app charges, that they can incur in-app charges without parental involvement, or that they would have to change their device settings in order to prevent children from incurring in-app charges without parental involvement.

- In response to Questions One, Two, and Three, the Key Details badge <u>does not</u> effectively convey to all consumers that children can incur in-app charges, that they can incur in-app charges without parental involvement, or that they would have to change their device settings to prevent children from incurring in-app charges without parental involvement.

- In response to Questions One, Two, and Three, the use of the term Parental Controls and the language used by Amazon in the IAP Note and Key Details badge and overlay <u>does not</u> effectively convey to consumers that children can incur in-app charges without parental involvement, or that they would have to change their device settings in order to prevent children from incurring in-app charges without parental involvement.

- In response to Question 4, I conclude that Amazon <u>did not</u> effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that children could incur certain in-app charges without password reentry.

- In response to Question 5, I conclude that Amazon <u>did not</u> effectively convey to consumers entering a password in response to an Amazon Appstore password prompt that they would have to change their device settings to prevent children from incurring certain

in-app charges without password reentry.

- In response to Question Six, I conclude that Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges that refunds were available for those charges from Amazon.

- In response to Question Seven, I conclude that Amazon <u>did not</u> effectively convey to consumers who incurred unauthorized in-app charges how to request a refund for those charges from Amazon.

Finally, I also found evidence in my analysis of the consumer complaints of several themes that directly support my usability analysis, most notably that some number of Amazon customers lack comprehension about what IAPs are and how they function. Additionally, many parents and tablet owners believed that they had installed a free app and thus purchases associated with that app were not possible. Finally, there was a lack of awareness among some customers that controls to restrict IAPs existed on the device, or confusion about how to use them.

s/Jennifer King
Berkeley, CA
October 16, 2015

Appendix 1: CV

Jennifer King
jenking@ischool.berkeley.edu
www.jenking.net

Overview
I am a researcher with academic training in human-computer interaction, information law and policy, and social aspects of technology. My primary research focus is an empirical inquiry (utilizing both qualitative and quantitative methods based in human-computer interaction) of how technology impacts personal information privacy. Prior to entering academia, I spent nearly a decade in Internet product management and production at both large technology companies and internet start-ups, working in the areas of security, online communities, online dating, e-education, Internet application development, and e-commerce. My professional skills include information architecture, usability testing, requirements gathering and analysis, and product design and marketing.

Current Position
Ph.D Candidate/Researcher, University of California, Berkeley School of Information, 2009 – present.

Education
University of California, Berkeley, Masters of Information Science (MIMS), 2006
- Recipient of 2006 Dr. James R. Chen award for master's thesis "Social Uses of Communication Backchannels in a Shared Physical Space."
- Teaching Assistant, Usability & Needs Assessment Course (Fall 2005)
- Fellowship Award Recipient

University of California, Irvine, Bachelor of Arts, Political Science and Sociology, 1994
Honors in Political Science, National Political Science Honors Society, National Sociology Honors Society, Dean's List, UCDC Scholarship Award Recipient, Lyndon B. Johnson Congressional Fellow (1993).

Publications and Workshop Papers
Note: please visit jenking.net/research for the most current list.

Jennifer King. "Taken Out of Context: An Empirical Analysis of Westin's Privacy Scale." Presented at the Workshop on Privacy Personas and Segmentation (PPS) at SOUPS, July 2014. Menlo Park, CA, USA.

Christopher Thompson, Maritza Johnson, Serge Egelman, David Wagner, and Jennifer King. "When It's Better to Ask Forgiveness than Get Permission: Attribution Mechanisms for Smartphone Resources." Presented at the Symposium on Usable Privacy and Security, July 2013. Newcastle, UK.

Jennifer King. "How Come I'm Allowing Strangers To Go Through My Phone?: Smartphones And Privacy Expectations." Presented at the Workshop on Usable Privacy and Security for Mobile Devices (U-PriSM) at SOUPS, July 2012. Washington, D.C., USA. Note: This paper was also workshopped at the Privacy Law Scholars Conference (invitation only), June 2012, Washington, D.C., USA. Selected as a Leading Paper for Policymakers by the Future of Privacy Forum, 2012.

Deirdre K. Mulligan and Jennifer King. "Bridging the Gap Between Privacy and Design." University of Pennsylvania Journal of Constitutional Law, Vol. 14, Issue 4, 2012. Selected as a Leading Paper for Policymakers by the Future of Privacy Forum, 2012.

Jennifer King and Deirdre K. Mulligan. "Reconceptualizing Privacy for Social Media Research and Design." Presented at *Reconciling Privacy with Social Media*, CSCW Workshop, 2012.

Jennifer King, Airi Lampinen, and Alex Smolen. "Privacy: Is There An App For That?" Presented at the Symposium on Usable Privacy and Security, July 2011. Pittsburgh, PA.

King, Jennifer and Selcugoklu, Aylin. "Where's the Beep? User Misunderstandings of RFID." In Proceedings of 2011 IEEE International Conference on RFID.

Hoofnagle, Chris; King, Jennifer; Li, Su; and Turow, Joseph. "How Different are Young Adults from Older Adults When it Comes to Information Privacy Attitudes and Policies?" April 14, 2010. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1589864. Selected as a Leading Paper for Policymakers by the Future of Privacy Forum, 2010.

Turow, Joseph; King, Jennifer; Hoofnagle, Chris; Bleakley, Amy; and Hennessey, Michael. "Americans Reject Tailored Advertising and the Three Activities That Enable It." September 29, 2009. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1478214

Jennifer King, Deirdre Mulligan, and Steven Raphael. "CITRIS Report: An Evaluation of the Effectiveness of the City of San Francisco's Community Safety Cameras." Presented before the City of San Francisco Police Commission, January 2009.

Chris Jay Hoofnagle and Jennifer King. "Research Report: What Californians Understand About Privacy Online." September 3, 2008. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1262130

Jennifer King and Andrew McDiarmid. "Where's The Beep? Security, Privacy, and User Misunderstandings of RFID." In proceedings of USENIX Usability, Security, and Psychology. San Francisco, CA, April 14, 2008. Available at: http://portal.acm.org/citation.cfm?id=1387652

Chris Jay Hoofnagle and Jennifer King. "Research Report: What Californians Understand About Privacy Offline." May 15, 2008. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1133075

Jennifer King and Chris Jay Hoofnagle, "A Supermajority of Californians Support Limits on Law Enforcement Access to Cell Phone Location Information," February 2008. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1137988

Chris Jay Hoofnagle and Jennifer King. "Consumer Information Sharing: Where The Sun Still Don't Shine," December 2007. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1137990

M. Meingast, J. King, D. Mulligan. " Security and Privacy Risks of Embedded RFID in Everyday Things: the e-Passport and Beyond," Journal of Communications, 2(7), 2007.

Egelman, Serge, King, Jen, Miller, Robert C., Ragouzis, Nick, and Shehan, Erika. "Security User Studies: Methodologies and Best Practices." Extended abstracts of the ACM Conference on Human Factors in Computing Systems (CHI 2007). San Jose, CA, USA, April 28, 2007.

M. Meingast, J. King, D. Mulligan. "Embedded RFID and Everyday Things: A Case Study of the Security and Privacy Risks of the U.S. e-Passport." In Proceedings of IEEE International Conference on RFID, March 2007.

Invited Talks & Panels

In Short – Advertising and Privacy Disclosures for a Digital World. Federal Trade Commission workshop, May 30, 2012. – Opening speaker and panelist.

How To Personalize Without Being Creepy. SXSW Interactive – March 14, 2011. Austin, TX. – Panelist.

"A Supermajority of Californians Support Limits on Law Enforcement Access to Cell Phone Location Information," given at the 37th Research Conference on Communication, Information and Internet Policy (TPRC), September 26, 2008, George Mason University, Alexandria, VA.

"Where's the Beep? Security, Privacy, and User Misunderstandings of RFID," given at "Pay On The Go: Consumers and Contactless Payment," Federal Trade Commission Town Hall Meeting, July 24, 2008, University of Washington, Seattle, WA. – Panelist.

"The State of CCTV in the United States," given at the 3rd Annual Surveillance and Society Conference "InVisibilities: The Practice and Experience of Surveillance in Everyday Life," April 3, 2008, University of Sheffield, Sheffield, England, UK.

"CCTV: Developing Privacy Best Practices," Department of Homeland Security Workshop, December 17-18, 2007, Alexandria, VA. – Panelist

"Sensors as Disruptive Technology: Guidelines for Future Development," given at the IBM Sensor Day, October 2007, UC Berkeley, Berkeley, CA.

"Embedded RFID and Everyday Things: A Case Study of the Security and Privacy Risks of the U.S. e-Passport," given at the IEEE International Conference on RFID, March 2007, Grapevine, TX.

"RFID: A Case Study of the Risks and Benefits of Location-Aware Technologies," given at the O'Reilly Emerging Technology Conference, March 8, 2006, San Diego, CA.

Honors and Service
Committee Member, *The Future of Networked Privacy: Challenges and Opportunities*, CSCW Workshop, 2015
Reviewer, CHI, 2014
Committee Member, *Measuring Networked Privacy*, CSCW Workshop, 2013
Reviewer, CSCW 2013
Committee Member, California State Advisory Board on Mobile Privacy Policies, 2012
Reviewer, IEEE RFID 2012
Selected leading paper, Future of Privacy Forum's Privacy Papers for Policy Makers, 2012 and 2010
Member, State of California RFID Advisory Board, 10.07 – 3.08

Professional and Research Experience

Contract Litigation Consultant, 9.10 – present
In 2012 I was a testifying expert in *FTC vs. Commerce Planet* (Case No.: 8:09-cv-01324-CJC(RNBx)), resulting in a permanent injunction, restitution, and disgorgement against the defendant for deceptive and unfair practices violating Section 5(a) of the FTC Act. I completed an expert report, rebuttal report, was deposed, and testified at trial. The substance of my report was a heuristic evaluation of a portion of the Commerce Planet website to determine the clarity and conspicuousness of negative option marketing disclosures to consumers.

Research Specialist, Samuelson Law, Technology, & Public Policy Clinic, U.C. Berkeley School of Law, Berkeley, CA 1.07 – 8.09
As the Clinic's resident faculty technologist, I utilized my training in information science, the social sciences, and my experience in technology development and human-computer interaction to perform empirical research and develop policy recommendations focused on privacy issues with Internet technologies, ubiquitous computing and sensor networks, including RFID and video surveillance systems.

Paranoid Yahoo!, Yahoo! Data Security (Paranoid) Team, Sunnyvale, CA, 6.06 – 12.06 (contract)

The Paranoid team works to protect the privacy and integrity of Yahoo! user data worldwide. As a Paranoid, I developed strategic initiatives to combat password "phishing" threats for Yahoo! users, and evaluated internal and external applications for data privacy and integrity threats, developing applications and internal policy.

Graduate Student Researcher, UC Berkeley School of Information, 2004 – 2005
Conducted ethnographic interviews and research for Professor Nancy Van House's research project exploring the social uses of cameraphones.

Graduate Student Researcher, Samuelson Law, Technology, and Public Policy Clinic, UC Berkeley School of Law, 5.05 – 9.05

Researcher, Electronic Frontier Foundation, San Francisco, CA 5.05 – 9.05
The EFF is a non-profit group that advocates for Internet civil rights, privacy, and free speech. As a summer researcher, I investigated privacy policies governing user data on major search engines and privacy issues related to radio frequency identification (RFID).

Customer Trust Product Manager, **Yahoo! Community Services**, Sunnyvale, CA, 3.03 – 7.04
The Customer Trust Manager role was a new position created on the Product Management team to combat abuse and illegal uses of Community properties, and to be an advocate for Yahoo! customers. In this role, I developed strategic and tactical Community anti-abuse initiatives, and evangelized these efforts across the company, working closely with legal, policy, data security, and various product teams. I focused on investigating deviant and anti-social users of Community products, and spent over a year performing an extensive qualitative and quantitative analysis of a criminal user population to create policies and build software tools to curb their usage of the service; this effort decreased their content contributions to Yahoo! by over 80%.

Associate Product Manager, **Yahoo! Personals**, Sunnyvale, CA, 9.02 – 3.03
As a product manager for Yahoo's online dating service, I managed feature development from conception to completion, working with marketing, interaction and visual design, web development, engineering, and quality assurance teams. I drove development of front-end and back-end features, including video greetings, direct marketing programs, and internal customer care tools. Led the creation of anti-fraud initiatives, increasing customer retention and recapturing over $4M in annual revenue.

Senior Producer, Kaplan Tech West, a subsidiary of Kaplan, Inc. Oakland, CA, 10.00 – 9.02
Kaplan Inc. is an international educational services company. Kaplan Tech West was Kaplan's primary software development team, charged with building an online distance-learning platform. As a senior producer, I oversaw end-to-end development of the learning platform's XML-based content authoring system, including requirements gathering, usability testing and evaluation, interface design, and user training. I performed a detailed semantic analysis of Kaplan instructional content, and worked with data architects to refine models for encoding Kaplan content in XML.

Producer, Desktop.com, San Francisco, CA, 7.00 – 10.00
Desktop.com provided an innovative platform for the secure authoring and deployment of online software applications. Desktop.com ceased operations in December 2000. As a producer, I created new applications for Desktop's Internet-based computer desktop product, performed market research and analysis of key competitors, and designed interface improvements to existing applications.

Associate Producer, **Productopia.com**, San Francisco, CA, 6.99 – 7.00
Productopia offered online product reviews and recommendations for consumers. Productopia ceased operations in October 2000. As an associate producer, I oversaw production of Productopia's revenue-generating application, including supervising a team of seven Production Assistants. I managed feature development from conception to completion, creating requirements documents, specifications, mock-ups, usability tests, and testing plans.

Freelance Writer and Research Consultant, San Francisco, CA, 1999 – 2003

Provided legal and factual research, copywriting, and editing. Clients included: *Wired* Magazine, Women.com, Embark.com, and *Mother Jones* Magazine. Publications include *Salon* Magazine, *Mother Jones* Magazine, *Bookmarks* Magazine, Chickclick.com, Shewire.com (technology columnist), and *Honolulu Weekly*.

Assistant Director, The Princeton Review of Hawaii, Honolulu, HI, 10.95 – 1.98
Director of Marketing, The Princeton Review of Orange County, Irvine, CA, 12.94 – 9.95
Instructor, The Princeton Review, Irvine, CA, Honolulu, HI, and Berkeley, CA, 1992 – 1999

Professional Associations
IEEE, ACM, SIGCHI

Appendix 2: Screenshots of Blocking In-App Purchase Settings
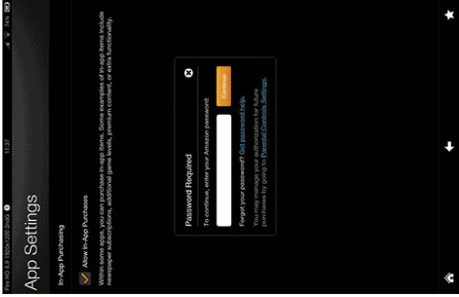

Blocking In-App Purchases

1. On the main Settings screen, choose Applications. On the Applications screen, select "Apps."

2. Under App Settings, select "In-App Purchasing". The default status is enabled.

3. On the In-App Purchasing screen, deselect the checkbox.

4. The password prompt appears to confirm the choice.

5. The 'Allow In-App Purchases" setting is now deselected.

6. The user attempts to make an in-app purchase.
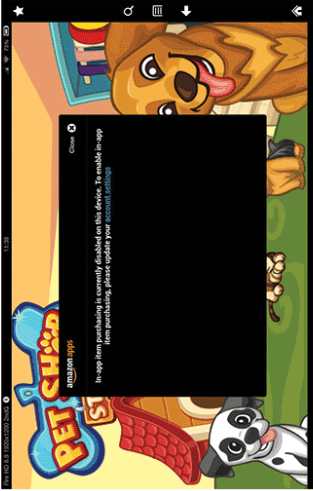
7. After the users selects the Buy button, a message appears informing the user that in-app purchasing is disabled. The user is directed to their Account Settings to enable IAP. Selecting the "Account Settings" link returns the user to Step 5, where they can re-select the IAP checkbox; a password prompt will again appear as in Step 4.

Created on Fire HD 8.9 (3rd Gen; OS 8.5.1)

Appendix 3: Above/Below Fold Comparison on Fire HD7 (2nd Gen.) Fire HD7 (3rd Gen.)

Screen Comparisons: Fire HD7 2nd Generation vs. Fire HD7 3rd Generation
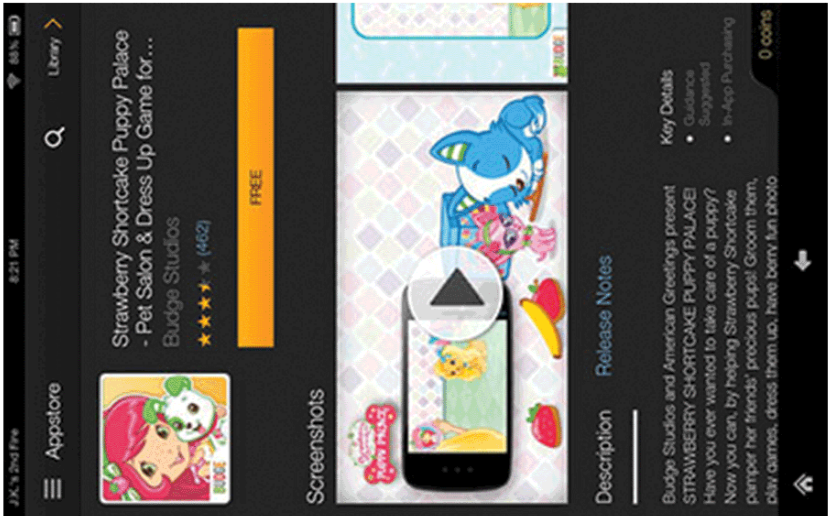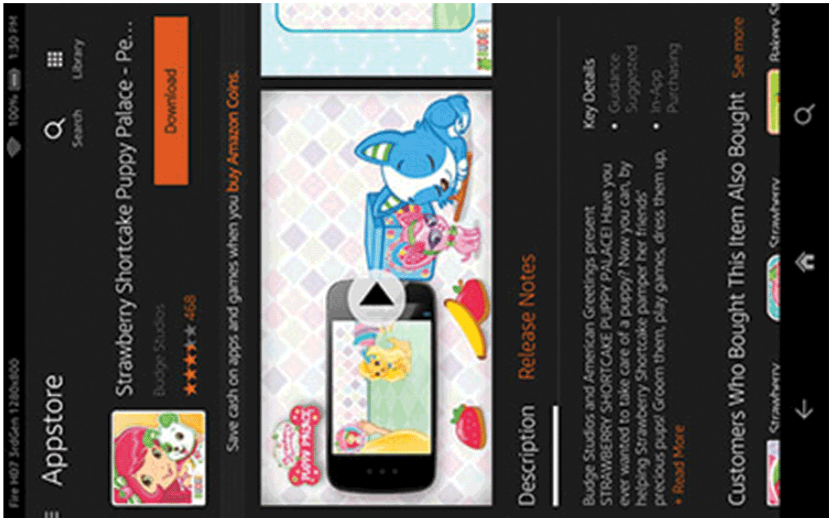
Kindle Fire HD7 - 3rd Generation (2013) (1280x800px)

Kindle Fire HD7 - 2nd Generation (2012) (1280x800px)

Appendix 4: Above/Below Fold Comparison on Fire HD7 (2nd Gen.) Fire HD 8.9 (2nd Gen.)

Screen Comparisons: Kindle HD7 2nd Generation vs. Fire HD 8.9 2nd Generation
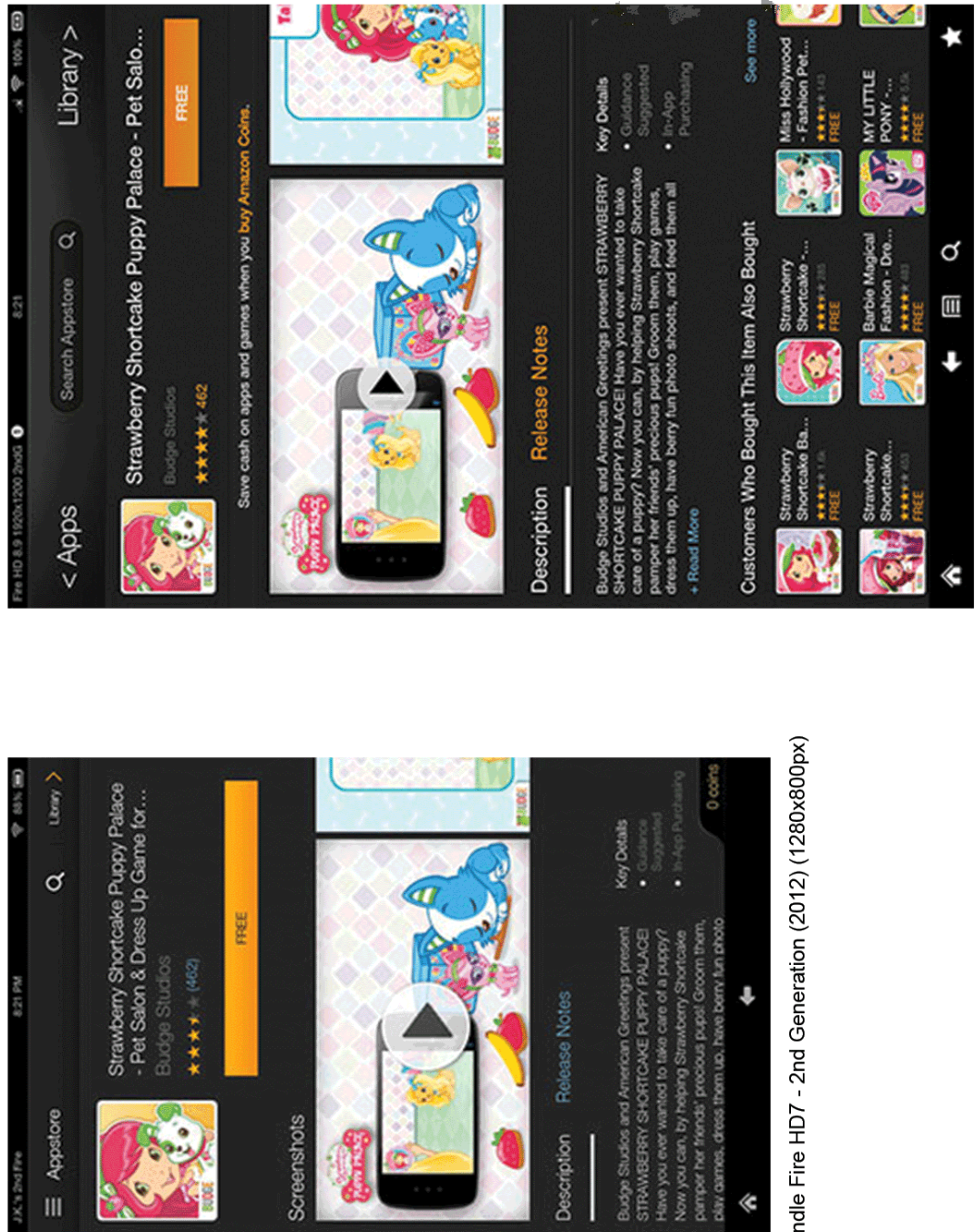
Kindle Fire HD 8.9 - 2nd Generation (2012) (1920x1200px)

Kindle Fire HD7 - 2nd Generation (2012) (1280x800px)

Appendix 5: Above/Below Fold Comparison on Fire HD7 (2ⁿᵈ Gen.) Fire HDX7 (3ʳᵈ Gen.)

Screen Comparisons: Fire HD7 2nd Generation vs. Fire HDX& 3rd Generation
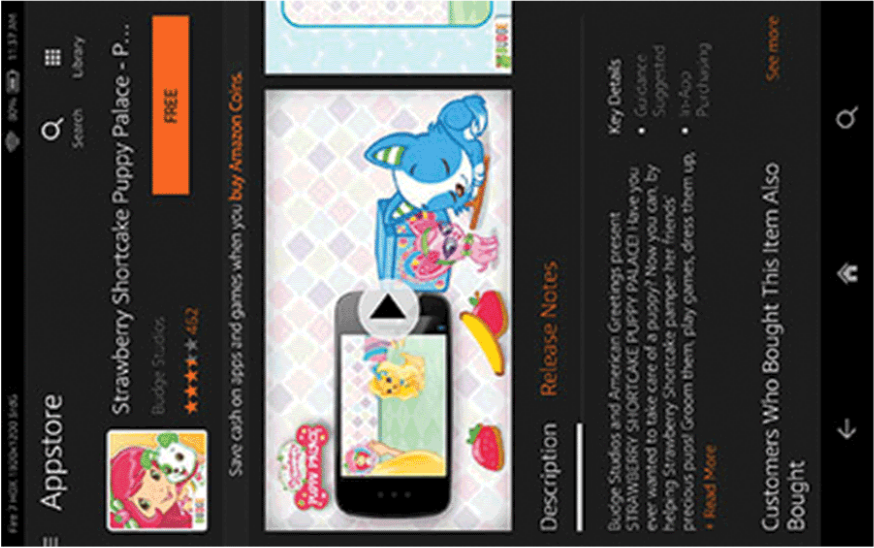
Kindle Fire HDX7 - 3rd Generation (Late 2013) (1920x1200px)

Kindle Fire HD7 - 2nd Generation (2012) (1280x800px)

EXHIBIT
B

REBUTTAL REPORT OF JENNIFER KING
Federal Trade Commission v. Amazon.com, Inc.
Case No. 2:14-cv-01038-JCC (W.D. Wash.)
December 7, 2015

I have been asked by counsel for my client, the Federal Trade Commission (FTC), to review and respond to certain aspects of expert reports submitted by Professor Ravi Dhar and Professor Donna Hoffman on behalf of the Defendant in *FTC v. Amazon.com, Inc.* on October 16, 2015. In some instances my responses incorporate and elaborate upon my initial expert report submitted October 16, 2015 on behalf of the FTC.

Summary of Opinions

A summary of my opinions are as follows:

- Without examining the empirical evidence available, Professor Dhar's analysis, which merely relies upon stating that the company took particular actions, does nothing to inform whether the actions were *effective*.

- Professor Dhar has not conducted any empirical analysis (e.g., a heuristic analysis, or review of any of the complaints made to Amazon regarding in-app purchases (IAPs)) to substantiate his claim in Conclusion #3 that Amazon's practices "would reasonably inform customers about IAPs."

- My expert report rebuts Professor Dhar's Conclusions #4 and #5, in which he claims that "Amazon balanced any harm from accidental IAPs by providing customers multiple avenues to contact Amazon customer services," and that even customers with accidental IAPs who did not seek a refund "were likely to be informed of the IAP charge after the confirmatory email." As I review in detail, there are several problems with the notification email consumers receive after an IAP purchase and the user flows Professor Dhar identifies as available for customers to contact Amazon about issues with digital purchases.

- My findings directly contradict Professor Dhar's Conclusion #9, where he seeks to

attribute some portion of IAP refunds to "buyer's remorse" or an unwillingness on the customers' part to change their behavior. He did not conduct any analysis of customer complaints to formulate this conclusion. In contrast, my analysis of customer complaints found multiple instances of customers being completely unaware that IAPs were even possible; customers surprised at the amount of IAPs their young children were able to purchase; many requests asking whether parental controls existed on the device and seeking help with activating them; and customers who were concerned their accounts had been hacked after discovering multiple charges they did not understand.

- In Conclusion #6, Professor Dhar describes Amazon's after-the-fact response to the significant number of IAP refund requests as an accepted business practice he terms "launch and learn." Given that IAPs have an immediate financial impact on users, it is surprising that a company of Amazon's size would not subject this feature to rigorous user research prior to launch. The evidence presented in this matter demonstrates that the company did not engage in user research in this area.

- Professor Hoffman's report lacks analysis based on actual evidence to render an informed judgment.

- Professor Hoffman's analysis conflates an absence of friction with effective usability and overlooks the fact that there are ample cases where consumers prefer "friction" in their online interactions in order to protect access to their personal data and financial resources. IAP restrictions are an example where adding "friction" to an interaction is entirely appropriate if well-designed.

- Professor Hoffman argues that the steps Amazon took to prevent unauthorized IAPs

3

by children were appropriate, yet she neither includes any empirical evidence or analysis of the facts to support this conclusion.

Clarifying Point on Terminology

Both Professor Dhar and Professor Hoffman's use of the term "flow" differs from how I and others in the fields of information science and human computer interaction use the term. This merits a quick explanation both to avoid confusion between our reports as well as to provide a clearer understanding of my use of the term. As both professors use it in their respective reports, flow refers to a visceral experience, following in the work of psychology scholar Mihaly Csikszentmihalyi. Professor Dhar cites Professor Hoffman's work to describe flow as immersive and experiential, where "irrelevant thoughts and perceptions are screened out and the consumer's attention is focused entirely on the interaction."[1] In contrast, when I use the term, I am referring to the actual progression one makes through an interface in order to complete a specific task, as well as the user's comprehension of the flow itself. In order to empirically assess the usability and efficacy of a given interface, one must map the options available to the user at each step and evaluate them using established principles of usability. This is the type of analysis I conduct in my report, and I draw my conclusions based on these observations. My attention to "user flow" or "task flow" is focused on the efficacy of the interface design in communicating to users how to complete specific tasks or communicate information. To that end, "friction," or task interruption, is not by definition a negative experience as long as the user flow supports the task at hand and is implemented following fundamental principles of usability.

I.   Rebuttal of Professor Ravi Dhar's Expert Report

---

[1] Expert Report of Ravi Dhar, p. 14.

Professor Dhar's expert report draws general conclusions about Amazon customers' experience without analyzing either the effectiveness of the elements central to Amazon's in-app purchase process or reviewing in any systematic way the 152,484 customer complaints produced by Amazon and discussed in my initial report.[2] In a matter such as this, where there is sufficient empirical evidence available both to examine the in-app purchase process as it appeared to consumers and to independently assess the concerns and questions posed by actual customers, an analysis that merely relies upon stating that the company took a particular action does nothing to inform whether the action was *effective*. In contrast, my report evaluates the effectiveness of Amazon's actions as they directly pertain to informing consumers about in-app purchases (IAPs), as well as the efficacy of the return process for IAPs. In this rebuttal, I will review the sections of Professor Dhar's report that bear most directly on these issues.

A. Evidence Contradicting Professor Dhar's Conclusion #3

In Conclusion 3, Professor Dhar states that Amazon's practices (the IAP note on the app detail pages, the parental control features, and the confirmation email sent after the completion of an IAP) "would reasonably inform customers about IAPs." However, Professor Dhar has not conducted any empirical analysis (e.g., a heuristic analysis, or review of any of the complaints made to Amazon regarding IAPs) to substantiate this claim. As explained in my expert report, a heuristic evaluation shows that these practices <u>did not</u> effectively convey to consumers downloading an app from the Amazon Appstore that children could incur in-app charges without password entry or other parental involvement. My findings are supported by an analysis of a random sample of customer complaints, which demonstrate that many Amazon customers were not only <u>not</u> "reasonably informed" about IAPs—many did not know what IAPs even were.

---

[2] Expert Report by Jennifer King, p. 57-67.

In Paragraph 57, Professor Dhar cites a page on the Amazon website entitled "In-App Purchasing 101" as further evidence of information Amazon provided to consumers about IAPs. However, examining the user flow to this page reveals that this page is difficult to locate. Notably, it is not part of the app download or IAP process. It is only accessible on the Amazon.com website, not through the Amazon Appstore on the tablet. Further, the only direct link to the page appears to be from the Amazon Appstore for Android home page[3], in a left-hand sidebar entitled "Quick Links." On the date[4] I visited this page, the link was located fourth in a list of seven items. Similar to what I discuss in my report with respect to pertinent information regarding IAPs being difficult to find[5], this page does not appear to be directly linked to from other more logical locations, such as from the Fire Tablet Help page,[6] or the main Amazon Appstore Help page.[7] Professor Dhar's reference to this page in his report is an example of his drawing a conclusion (namely that customers must have been reasonably informed) without examining the effectiveness of the mechanism used.

In support of his Conclusion 3 in Paragraph 57, Professor Dhar also suggests that customer reviews provide additional information to consumers about IAPs, without providing any consumer feedback or other evidence to support this assertion. The customer reviews section appears below the fold on Fire tablets, beneath the app description and a section entitled "Customers Who Bought This Item Also Bought"[8], followed by a list of suggested apps. Its placement in the visual hierarchy is low, both reducing its prominence and the likelihood that many consumers would even see the section. Finally, not all apps have customer reviews, and the

---

[3] http://www.amazon.com/mobile-apps/b/ref=topnav_storetab_mas?ie=UTF8&node=2350149011
[4] November 17, 2015
[5] King Expert Report, p. 22.
[6] https://www.amazon.com/gp/help/customer/display.html/ref=hp_bc_nav?ie=UTF8&nodeId=201531590
[7] https://www.amazon.com/gp/help/customer/display.html?nodeId=201357430
[8] It is noteworthy that Amazon uses the word "bought" in this section, though they appear to imply "downloaded" given that the suggestions include free apps with no purchase price.

6

top reviews that do display (the limit appears to be three) may make no mention of IAPs, rendering this section inconsistent at best for communicating any information about IAPs.

B. Evidence Contradicting Professor Dhar's Conclusions #4 & 5

In Conclusion 4, Professor Dhar concludes that "Amazon balanced any harm from accidental IAPs by providing customers multiple avenues to contact Amazon customer services."[9] Further, in Conclusion 5 he finds that consumers "were likely to be informed" about IAPs by the IAP confirmatory email. As I outlined in detail in my expert report, there are several problems with the notification email consumers receive after an IAP purchase and the user flows Professor Dhar identifies as available to contact Amazon about issues with digital purchases. Additionally, the sample of customer complaints I reviewed substantiate my findings and provide evidence that many customers did not know what IAPs were and were confused about whether IAPs could be refunded.

1. IAP Confirmation Email

In Paragraph 67, Professor Dhar claims that once a parent receives an IAP confirmation email, "Even if that parent were not previously aware of the possibility of his/her child making an IAP on the Amazon Appstore, upon reading the confirmation email for the first IAP made by his/her child, the parent would become aware of not only the existence of IAPs, but also that his/her child is able to make IAPs." To begin, if a post-purchase confirmation email is the first point at which an Amazon customer learns that an IAP has been made on his or her account, this indicates Amazon's failure to disclose this information effectively before purchase. If the disclosures made on the app detail page and during the IAP process are effective, then an Amazon customer should have been aware prior to purchase that an IAP was initiated.

---

[9] Dhar report, pg. 5.

Further, as I review in detail in my expert report in pages 43-48, the IAP confirmation email itself contains multiple flaws that challenge its effectiveness as a mechanism for informing customers about IAPs. Professor Dhar, in Paragraph 66, writes: "[t]he confirmation email is clear in informing the account holder what the charge is for, because it includes detailed information about the IAP, such as the date of the purchase, name of the purchased IAP item and the cost." I contest this conclusion. The text of the email itself does not explain that the purchase itself was an IAP or that it was associated with a particular app, and when one clicks on the product link provided in the email, it appears to result in a "page not found" error. This finding was not limited to my own experience; in my sample of complaints, at least one customer reported not understanding what an IAP was, attempting to use the link in the email, and finding it broken:

Customer: [i] dont know where this order came from. It is labeled Scoop of Tips and takes me to a page that gives a 404 error:
http://www.amazon.com/gp/productIBOO9R8XBAC/ref=oh_d_000_details_000_iOO?ie=UTF8&psc=1.
[i] dont think anyone ordered it here, as my daughter has ordered stuff before off of my kindle i cant be sure. If i knew what this was, I might be able to figure out if it was ordered from the Kindle; but i cant get any information from the website with the page not existing. [24758940355]

Furthermore, in Paragraphs 65-67, Professor Dhar makes the argument that the confirmation email is a "reasonably likely" means "to inform customers about the possibility of IAPs being made by their children." As noted above, the email does not even indicate that the purchase occurred inside a specific app; it only lists the item purchased, without any indication that the item is an IAP. The customer complaints I reviewed also provide evidence that there are circumstances where the emails failed to inform customers about IAPs made on their accounts, as I discuss in the next paragraph. Professor Dhar does not provide any evidence suggesting that every person reads these emails immediately, on a daily basis, or at all. There are a multitude of reasons why Amazon customers may not open or read a purchase confirmation email. Notably, Amazon itself reports "a 57% open rate for email receipts sent for the U.S. marketplace for

8

digital sales from January 1, 2015 through August 29, 2015", meaning that 43% of receipts for digital sales go unopened.[10]

My analysis of the customer complaints provided also revealed that parents occasionally first discovered IAPs made on their accounts through their financial institutions (rather than through the IAP process or from Amazon). The following customer complaints illustrate cases where customers learned of children's IAPs from banks or credit card companies:

Customer: Do you know how many orders there were? can you see how much was spent? i have NO idea i didnt even know until i got my credit card statement and didnt know what all these charges were for
Rep: I see 234 orders ranging [mostly] from $4.99 to $19.99 and with so many that is a rough guess.
Customer: 0MG no freaking way
Rep: Yes this is quite a bit.
Customer: omg what can i do? [23521535365]

Customer: I just received a call from my credit card company, they were [making me aware] of a hold put on my card which I was not aware of. The credit card is associated with my amazon account. Once they brought this to my attention, I realized there were several orders that I had not placed, Im assuming my son must have placed these orders, hes 6. [24281288835]

2.   Digital Returns and Contacting Customer Support

Amazon's digital goods returns process does not make it clear to consumers how to request refunds for IAPs, given that there is no return process for in-app items as there is for physical products and that there are poor explanations of their policies.[11] This bifurcation presents challenges to those Amazon customers whose primary experience with the company is based on making purchases of physical items. Amazon has been in business since 1996, and for customers with experience purchasing and occasionally returning physical goods, their mental model—their understanding of how the purchase and returns process functions—is likely based on their experience with purchasing physical goods. The fact that there is not a similarly defined process for digital goods causes confusion, which is evident in the customer complaints:

---

[10] Defendant's Supplemental Responses and Objections to FTC's Fourth Set of Interrogatories, P. 3.
[11] King Expert Report, p. 52-55.

Customer: Help!! My 12 year old son keeps buying apps for his kindle...he bought the same item 4 times yesterday. ..how does this keep happening? Doesnt Amazon recognize when someone already has bought an app? i dont think he understands that he is purchasing things...i need to control this but i dont know how to tweak my settings. Also, is there a way to return things he has bought digitally that were not authorized? There are several things that he has that i did not approve...if there is a way to return digital items i would like to know how...and also how to control what he buys before he is allowed to buy it. Thanks! [24509555645]

Customer: Our 5 year old daughter got a hold [of] my [wife's] Kindle tonight at about 6:30 and ordered this comic, we have tried looking for how to return it, but have been unsuccessful. We want it removed-returned off our Kindle and a full refund to our card. [24334872995]

Amazon customers who have had the experience of returning a physical product to the company have been exposed to a user flow that is consistently structured. Once a customer locates a specific order for physical goods on his or her Amazon.com account, there is a button entitled "Return or Replace Items" that always appears next to each item in an order. The process for submitting a physical item for return is consistent across orders. In contrast, my review of the customer complaints demonstrates that many consumers did not understand how to seek refunds for IAPs.

Professor Dhar notes in passing in Paragraph 33 and in more detail in Paragraph 69 that Amazon made multiple avenues available to customers to contact the company. However, as my report discusses in detail, these avenues did not clearly explain whether IAPs were refundable, or if so, how to seek a refund. He specifically mentions the "Mayday" function on newer editions of the Fire tablet, which allows customers to connect directly to Amazon customer service from their tablet using a video connection. However, the Mayday function is not simple to locate (if one clicks on the "?" icon on their tablet, they must use the "hamburger" menu[12] in the upper left to open a sidebar; Mayday appears as the seventh item from the top under "Contact Us."). Hamburger menus have been criticized as "less discoverable" due to their small size and lack of suggestion to a specific action (*e.g.*, as compared to an icon representing an action, such as a

---

[12] A "hamburger" menu typically consists of an icon with three horizontal parallel lines that resembles a hamburger encased in a bun.

magnifying glass for search) and thus not as easily noticed by users.[13] If one selects Mayday, the user is placed into a general help queue—no information is provided specifically about IAPs or digital returns on the Mayday connection page. In addition, if a customer elects to click the Phone & Email link from the same sidebar on the tablet, the customer is taken to a contact menu that is structurally similar to the flow discussed in Pages 48-51 of my expert report.

C. *Professor Dhar's Conclusion #9 Regarding Buyer's Remorse as a Motivational Factor for Seeking Refunds*

In Conclusion 9, Professor Dhar suggests that "a customer's decision to obtain a refund may be driven by other factors, such as buyer's remorse after the purchase." In Professor Dhar's citation, buyer's remorse is defined as "the sense of regret after having made a purchase."[14] However, Professor Dhar does not provide any actual examples of Amazon customers expressing buyer's remorse over their digital purchases. Professor Dhar uses this conclusion in Paragraph 108 to make the larger point that customers who sought refunds were "not uninformed about Amazon's IAP practices," but instead may have been taking advantage of the company's return policies. He also suggests that providing information alone is often not sufficient to change customer behavior, and that many returns may be the actions of fully informed parents who simply elected not to change their behavior and activate parental controls. He then presents an analysis he made of IAP returns requested after the implementation of the IAP High Price Password Prompt in July 2013 to substantiate his argument.

---

[13] Budiu, Raluca. "Basic Patterns for Mobile Navigation: A Primer." Nielsen Norman Group, November 15, 2015. Available at: http://www.nngroup.com/articles/mobile-navigation-patterns/.
[14] Maziriri, Eugine Tafadzwa, and Nkosivile Welcome Madinga. "The Effect of Buyer's Remorse on Consumer's Repeat- Purchase Intention: Experiences of Generation Y Apparel Student Consumers within the Vaal Triangle." *International Journal of Research in Business Studies and Management.* Volume 2, Issue 5 (May 2015): pp. 24–31.

Based on the sample of customer complaints I analyzed, I found no evidence of buyer's remorse in any of the cases where I identified the complaint as informative. Instead, I found multiple instances of customers being completely unaware that IAPs were even possible; customers surprised at the amount of IAPs their young children were able to purchase; many requests asking whether parental controls existed on the device and seeking help with activating them; and customers who were concerned their accounts had been hacked after discovering multiple charges they did not understand. In addition, in Exhibit AMZN000709, in a memo entitled "IAP Password Challenge," Amazon itself states that "Customer Service reported that 73% of customers that had IAP refund issues did not know parental controls were available."[15] This statement is consistent with my own complaints analysis, demonstrating that customers were unaware of parental controls rather than unwilling to use them. Professor Dhar's conclusion, which does not reference this evidence, makes unsubstantiated assumptions about the effectiveness of Amazon's IAP communications as well as the motivation of the customers who contacted Amazon seeking refunds.

Furthermore, Professor Dhar's conclusion that consumers were "informed by password prompts" about IAPs that were ultimately refunded (Paragraphs 109-114) rests upon the assumption that the password prompts these customers saw were effective in communicating to consumers that they were in the process of approving an IAP. As my report discusses extensively, the effectiveness of the password prompts in communicating information about IAPs to users is questionable.

D. Professor Dhar's Conclusion #6 Regarding "Launch & Learn" is Flawed

---

[15] Exhibit AMZN000709, Page 1.

12

In Conclusion 6, Professor Dhar discusses Amazon's iterative process of refining their IAP process as "'launch and learn,' a well-known and accepted business practice." Design practitioners would use the term "iterative design" rather than "launch and learn," which specifically suggests the paradigm of design as an iterative process. A design may evolve through multiple iterations, but key to this process is gathering and integrating user feedback, ideally through rigorous user research or usability testing, that seeks to determine whether the design changes satisfy users' needs. This is not the same as "beta" testing or quality assurance (QA) testing, where a product is tested to ensure it functions properly. Professor Dhar says that Amazon used "launch and learn" in its evolutionary design of its IAP password prompts, basing their changes primarily on refund data, and concludes in Paragraph 80 that "launch and learn" was the appropriate method for the company to "identify that small subset of customers who were either unwilling to use parental controls for IAPs or continue to be uninformed about them." But the model example he cites, based on practices documented at eBay, involved randomized (A/B) testing. A/B testing is appropriate for testing small, discrete issues: *i.e.*, font size, color choice, wording changes. An iterative design process using A/B testing may be appropriate for such features, but not for deploying a feature without appropriate research and testing, especially a feature that has direct financial consequences for one's customers.

Further, eBay's own user experience research team has produced multiple peer-reviewed papers[16] over the years highlighting both the company's process for conducting user testing and

---

[16] Jeff Herman. 2004. A process for creating the business case for user experience projects. In *CHI '04 Extended Abstracts on Human Factors in Computing Systems* (CHI EA '04). ACM, New York, NY, USA, 1413-1416.
Michael Katz. 2011. Why context is important when gathering design feedback: an e-commerce case study. In *CHI '11 Extended Abstracts on Human Factors in Computing Systems* (CHI EA '11). ACM, New York, NY, USA, 467-482.
Preston Smalley and Jeff Herman. 2005. Creating a system to share user experience best practices at eBay. In *CHI '05 Extended Abstracts on Human Factors in Computing Systems* (CHI EA '05). ACM, New York, NY, USA, 1797-1800.

the user-centric methods used—including usability studies, and heuristic analyses[17]—methods which Amazon neither claims nor appears to have used to evaluate the IAP process. According to internal Amazon documents, the company engaged in beta testing primarily using Amazon employees to test the Appstore platform, including the IAP process, for quality assurance prior to its initial launch in November 2011.[18] However, none of the documents I reviewed indicated any form of external user testing or research specifically on the issue of IAPs. The basis for the "launch and learn" strategy appears to have been one where proactive user research investigating user preferences around IAPs—including of both parent and child users—prior to launch was absent. Given how easily children could engage in IAPs and how quickly they could incur multiple charges to their parents' accounts, it is not surprising that accidental IAPs by children became the "primary root cause" for high IAP return rates.[19] Given that IAPs have an immediate financial impact on users, it is surprising that a company of Amazon's size would not subject this feature to user research prior to launch.

E. Summary

In summary, Professor Dhar's report makes a number of sweeping generalizations that are unsupported both by my fine-grained analysis as well as by the complaints of Amazon's own customers. Simply because Amazon provided some information to consumers about IAPs does not mean that they did so *effectively*. As my analysis of a sampling of the complaints demonstrates, many customers asked Amazon customer service representatives for help because

---

[17] Herman, p. 1415.
[18] I reviewed AMZN000017-000020, AMZN000223-000224, AMZ_FTC_0009532-0009536, Amz_FTC_0091603-0091614, and Amazon_00361904-00362121, Amz_FTC_0017487-0017500, Amz_FTC_0028446-0028447, Amz_FTC_0056674-0056677, Amz_FTC_0057486-0057488, Amz_FTC_0059202-0059207, Amazon_00365512-00365515, Amazon_00366818-00366830, Amazon_00369944-00369953, and Amazon_00376368-00376391, and Amazon_00014914-00014916, Amazon_00016240-00016248, Amazon_00278835-00278839, Amazon_00306467-00306489.
[19] Exhibit AMZ000709.

they were unaware of IAPs, did not understand how they could be purchased, or could not locate parental controls or were unaware they existed. These are customers who are actively seeking information to willingly change their behavior, but who were unable to obtain this information from their tablets, IAP confirmation emails, or the Amazon website due to poor implementation.

II.   Rebuttal of Professor Donna Hoffman's Expert Report

Professor Hoffman's expert report analyzes IAPs at a high level without examining the IAP process itself or other evidence, such as the customer complaints provided in this case. Her report focuses primarily on the concept of "friction," making the basic argument that digital consumers prefer as little friction as possible in their online interactions. Her analysis conflates the absence of friction with effective usability and overlooks the fact that there are ample cases where consumers do prefer "friction" in order to protect access to their personal data and financial resources.

A. Friction and Usability Are Not Mutually Exclusive Concepts

In Paragraph 16, Professor Hoffman argues that "consumers prefer a relatively friction-free, efficient online or mobile experience where user interactions are as seamless as possible and the online site or mobile app is as easy to use as possible with as few barriers (such as password prompts) as possible interfering to impede usability." This conclusion makes several assumptions that are not supported by an examination of the evidence in this case.

As I discuss in the opening of this rebuttal, Professor Hoffman relies upon a concept of flow that is immersive and experiential, and explains in Paragraph 24 that "[i]ntroducing unnecessary friction through elements that distract from the primary task is likely to lead to negative consumer consequences, including increased consumer distraction, annoyance,

frustration, anxiety, the inability to achieve a state of flow during the online experience, and difficulty processing information about products and services. These negative consequences can also negatively impact online retailer conversion rates." In Paragraph 49, she discusses pop-up ads as an example of a task interruption that is trivial and annoying. But her reasoning deems all task interruptions negatively, both ignoring the crucial issue of context as well as the usability and relevance of the interruption itself.

Online interactions with unnecessary friction or poor usability can be frustrating for users, but when faced with decisions regarding their sensitive personal or financial data, for example, research suggests that people prefer interactions that give them control over access to this information.[20] For example, in the mobile payments context, consumers have been slow to adopt this technology in part *because* the lack of friction gives rise to security concerns.[21] Professor Hoffman, in Paragraph 30, concedes a similar point: "it is impossible to eliminate all transaction costs in the dynamic online environment." While users may desire online and mobile experiences with good, effortless usability, when it comes to preventing unauthorized access to personal or financial information, users often will demand "friction"—such as password prompts or similar forms of identity verification—as long as it is implemented with good usability in mind. This is certainly the case with IAPs in the Amazon Appstore, as the customer complaints in this case demonstrate. For example:

Customer: MY 3 YEAR OLD ORDERED THIS PLEASE CANCEL AND LOCK HER FROM MAKING ANY ORDERS CAN WE INSTALL A PASSWORD FOR ANYTHING THAT COSTS MONEY

---

[20] Madden, Mary. "Privacy Management on Social Media Sites." Pew Research Center, February 24, 2012. Available at: http://www.pewinternet.org/files/old-media//Files/Reports/2012/PIP_Privacy_management_on_social_media_sites_022412.pdf

[21] There are multiple consumer surveys that offer similar findings regarding mobile payments and consumers' reluctance to adopt them, but see specifically: Board of Governors of the Federal Reserve System. "Consumers and Mobile Financial Services 2015," at page 2. Available at: http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201503.pdf. My own research on "friction-free" payments also speaks to this point: Jennifer King and Andrew McDiarmid. "Where's The Beep? Security, Privacy, and User Misunderstandings of RFID." In proceedings of USENIX Usability, Security, and Psychology. San Francisco, CA, April 14, 2008.

[25426100555]

Customer: My 4 year old son purchased something called GluCredits for a game on my kindle for 19.99. Can i cancel this order? thanks also, is there a way to set up my kindle fire so that any purchases are password protected? can i password protect my kindle so all purchases need a password? actually, it would be great if i could password protect so nothing could be downloaded or purchased without a passcode.[22600138035]

Customer: this app was somehow purchased by my 2 year old grandson while playing with my kindle... I have no idea how he did it and it is not even showing up on my device or in the cloud files on my device. I was not aware that there was no password prompt preventing children from making purchases. I am requesting a refund for this app. Thank you for your help.[26590563885]

Customer: Hello, Apparently my 7 yr old clicked on an app and purchased it by mistake on Sept 26. I want to make sure my one click settings are set to where purchases cannot be made without a password[25460173985]

To be clear, Amazon does not offer a "friction free" shopping experience; at various points when interacting with the website, one must verify his or her identity by entering a password. Activating Amazon's "1-Click" feature does not remove the authentication step during a session. As I discuss on pages 64-65 of my expert report, the integration of the 1-Click purchase feature into the Appstore as the sole method for making digital purchases has caused confusion among many of Amazon's customers. On the Amazon.com website, 1-Click is an optional feature that removes the step of selecting shipping and payment methods when making an order. But to place an order using 1-Click on Amazon.com, an Amazon customer still would have had to authenticate, via a password entry, at some point during the active session. Moreover, as discussed earlier in this report. since most Amazon customers' mental models of this feature were likely developed when ordering physical goods from Amazon.com, some customers mistakenly believe that turning off 1-Click on the Amazon website prevents purchasing on their Fire tablets through the Appstore. This confusion between the purchase process on Amazon's website and the Appstore, combined with a lack of awareness of parental controls and IAPs, appears to have led to many consumer complaints about accidental purchases by children.

Underlying Professor Hoffman's argument is the assumption that authentication, specifically through password prompts, creates unnecessary friction. One widely studied area around friction in e-commerce is in form design—how companies design the information input forms needed to collect registration and payment information online. There are multiple case studies—including my previous citation at Footnote 16 about eBay's design process—where designers have successfully transformed a point of friction involving input forms into one where the required information is gathered while demonstrably improving both usability and sales.[22] As these case studies show, an input (such as password prompt) can be integrated into the user experience in ways that both minimize friction and benefit the user.

Professor Hoffman also does not analyze whether adding contextually relevant information to an IAP prompt would add friction to the process. She does not consider how additional communication can transform a necessary step (such as password authentication) from a negative (high friction) experience to a more positive (low friction) user experience. For example, as I discuss in my report on pages 34 through 39, I walk through each iteration of the IAP password prompt and discuss how through the eventual inclusion of contextually-relevant information and choices, the IAP password prompt evolves from being uninformative and unhelpful to a prompt that in its current iteration provides context for its appearance and allows the user to take a specific action directly in the current flow. Amazon's current prompt gives users the choice whether to allow IAPs through password entry (albeit through parental controls, which I believe is still problematic). Even with this option, Professor Hoffman does not appear to agree that this solution minimizes friction while achieving a restriction on purchases that even some non-parents may wish to implement simply because they may not wish to allow unfettered

---

[22] Wroblewski, Luke. Web Form Design: Filling In The Blanks. Rosenfeld Media: 2008. See also: Jarrett, Caroline and Gaffney, Gerry. Forms That Work: Designing Web Forms for Usability. Morgan Kaufmann: Burlington, Ma. 2009.

IAPs on their tablets for security concerns. She notes in Paragraph 76 that, "[i]f anything, Amazon's refinements have introduced more friction than would be optimal for consumers."

B. *Professor Hoffman Offers No Evidence To Support Her Conclusion That Amazon's IAP Practices Were An "Entirely Appropriate" Approach to Unwanted Purchases*

In Paragraph 18, Professor Hoffman concludes that "Amazon's use of point of sale notifications, parental controls and subsequently, incremental refinements to its in-app purchase flow (IAP) to include additional password protections, is an entirely appropriate way of balancing the issue of unwanted purchases by children experienced by a small percentage of customers, without imposing unnecessary friction for the majority of its customers." This assertion neither includes any empirical evidence or analysis to support this conclusion, nor does it consider any perspective other than that of an idealized adult consumer.

In Paragraph 73, Professor Hoffman says that, "when Amazon first enabled in-app purchases in November 2011, it provided notices of in-app purchasing, near-immediate confirmatory emails to the Amazon account holder after each in-app purchase, and offered customers the *option* to require passwords for all IAPs, rather than impose the password requirement by default." As discussed above, the existence of these aspects does not mean they were effective in notifying consumers about IAPs or that parental controls were available. As my expert report details, these aspects were not effective in communicating these features.

C. *Summary*

Ultimately, Professor Hoffman's report lacks analysis based on actual evidence to render an informed judgment, and both a close examination of the app detail pages, IAP disclosures,

password prompts, and customer complaints demonstrates that the evidence on the ground sharply contradicts the conclusions drawn by Professor Hoffman.

III.   Summary of Rebuttal Report

In sum, both Professor Dhar's and Professor Hoffman's expert reports suffer from an over-reliance on theory and an absence of analysis of actual evidence. Neither Professor Dhar nor Professor Hoffman performed a heuristic analysis of the app detail pages, the IAP disclosures, or the IAP purchase process in order to examine first hand what customers themselves experienced. They also did not examine in detail a sampling of the customer complaints provided by Amazon, in which customers who incurred unauthorized IAPs offered in their own words their concerns, motivations, and sources of confusion. Without conducting a similarly exhaustive, on the ground analysis of the data in this matter, Professor Dhar's and Professor Hoffman's conclusions lack credible support.

s/

Jennifer King
December 7, 2015
Berkeley, CA